EDITORIAL
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The war has been won, but other battles are being fought now in this country. Labor is on the warpath for its rights. Strikes have become common. There is need for a settling down movement—for capital and labor to work hand in hand, each respecting the other's rights. The community of interest between all men should be recognized as never before. Many plans have been offered in attempting to solve this problem. They should be fully tried in the effort to democratize the industries of the United States.

THE LABOR SITUATION.

THE signing of the armistice found capital and labor working together as never before. It was a brotherhood, working for a common cause. When peace came there was jubilation and the general feeling that our troubles had ended, and once again we could settle down to our life of peaceful industry. True, it was said, there would be a reconstruction period, but was that not to be expected after nearly five years of world warfare?

International problems have been superseded by national uncertainties that are vast in their scope and demoralizing in their influence, and paramount among them is the present labor situation. In this strife, agreements between employers and employees have been treated as "scraps of paper." Employers have pointed out that the completion of contracts, based on other than the prevailing scales of wages, will result in financial difficulties if substantially higher rates of pay are demanded. The employees, particularly the skilled workers, counter-attack with statistics on the high cost of living and the increases that have been granted to unskilled workers.

Many causes are attributed to the present industrial unrest, which, by the way, is by no means confined to America. In Great Britain, where similar conditions exist, a joint committee of employers and employes reports six reasons as contributing to the situation: Suspicion; fear of unemployment; unfair division of profits and products; status in industry; extremist propaganda; and economic fallacies.

America's problem is one of establishing economic equilibrium, with capital and labor working hand in hand, each respecting the other's rights.

From many quarters come constructive suggestions, among them the feeling that there should be a strong get-together movement between employer and worker through works committees, or similar bodies, which will give workers full opportunity to have grievances settled in amicable fashion and to have a voice in the management of condition of employment, hours, wages, and kindred affairs.

There must be a revival of the old relations, which existed between employer and worker in the days of the small shops, it is suggested—the days when they spoke affectionately and proudly of "our shop." It is also felt that steps should be taken to insure the worker of deriving from the product, his just share of his contribution towards it—a real share in the profits.

There is need for a restoration of balance between the earning power of men and the purchasing power of wages, and it is fundamental that more wages and profits cannot be squeezed out of a business than it produces. This is a principle that everyone should keep in mind. Employer and employee are in one boat. The community of interest between all men should be recognized as never before.

Much favor is displayed towards the establishment of "works committees," or similar bodies, as a solution of industrial difficulties. Among the advocates of this system is Walter Gordon Merritt, counsel for the Anti-Boycott Association, who delivered a remarkable address before the Annual Convention, this year, of the Heating and Piping Contractors National Association. When he spoke in Atlantic City he said that class alignment must give way to harmonious factory government—factory unions as against militant unionism. It is his belief that the economic soundness of the new idea of works organization cannot be successfully disputed. He is opposed to arraying one class against the other and believes in the co-operation of companies through representatives chosen by both employers and employees of each plant, rather than by national associations of employers and national unions with their class antagonisms. He feels, further, that Government co-operation can accomplish much by working with factory organizations.

An investigation among several hundred industrial establishments reveals that at least three plans are being used, the plans being known as the "works committee" plan, the "industrial council" plan, and the "house and senate" plan, all designed to give employees more voice in management, especially relating to working conditions, hours and wages. The purposes of each are practically the same, but the method of operation differs. So far as is known, none of these plans involves direct representation on the part of the workers on the board of directors.

There is need for every agency in the country to work towards better relations between employer and employee—the establishment of confidence and fairness on both sides.

The effort to democratize the industries of the United States is making steady progress, but, so far, results are not conclusive.

The VENTILATION *of* RESTAURANT KITCHENS

Second Article Presents Suggestions Regarding the Design of Equipment for Creating the Best Working Conditions in Restaurant Kitchens, of Which There are Four Types

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Editor's Note—The following article, continued from page 55 of the July 12th issue, concludes Dr. Hill's discussion of kitchen equipment. In every city in the United States there are one or more types of kitchens in which improvements could be made. The information presented can be used to remedy local conditions and thereby develop profitable business in the sale of ventilating equipment.

IN the first article submitted for the consideration of readers of "Domestic Engineering," the writer classified restaurant kitchens in four types, which were illustrated with photographs of various places to be found in Chicago. This article presents something of interest in the way of designs for types 1, 2, and 3, and a discussion of type 4, with conclusions.

No. 1.—Lunch Counter Type.

The service in the small lunch counter restaurants consists mainly of short orders, and the amount of cooking done is not large. Food is prepared in the same room in which it is served. A range and other essential parts of the kitchen

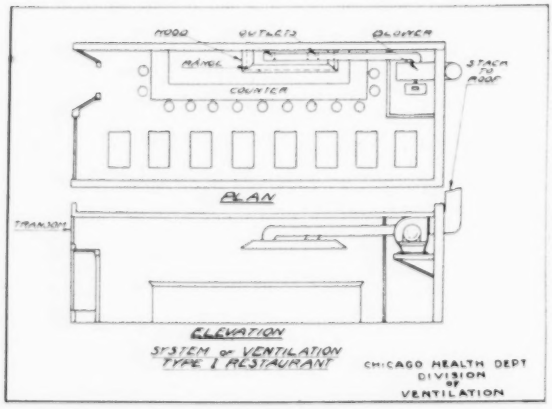


Fig. 1.—Layout for Lunch Counter Kitchen.

equipment are usually behind the lunch counter. In addition to the lunch counter service tables may also be provided. As a rule a canopy is provided over part of the space back of the counter. The canopy is usually of sufficient size to cover only the range proper. It is sometimes extended over the steam tables, depending upon the size of the equipment and the amount of patronage which the restaurant enjoys. The exhaust duct is carried backward to the fan, which is installed in some suitable location out of the way. The fan should be of the blower type, either suspended from the ceiling or placed on a special platform. A duct is carried from the outlet of the fan full size through the building wall and upward to a point above the roof. If the building is several stories high, a blower type fan must be used, as the air resistance through the canopy and discharge duct, is usually too high to permit the use of a disc type fan. Some installations are found where a direct connected disc type fan is used, especially where the discharge is directly to the outside air, no duct being used outside the building. From an engineering standpoint this is permissible, if the duct from the canopy is carried full size and if the openings into the canopy are not in any way restricted. There is, however, a serious objection to the use of direct connected disc fans in instances of this kind, as the fire hazard is materially increased thereby.

The deposits of carbon and grease in the ventilation equipment are quite inflammable, and the danger of fire from a sparking commutator or overheated armature must always be considered. As a matter of general practice, direct connected disc fans in restaurant equipments should be discouraged, except where they are used entirely without duct work. In some localities, where restaurants are frequently installed in one-story buildings, the equipment, as shown in the illustration for this type of restaurant, can be dispensed with and a monitor-deck skylight provided over the counter space. Such a skylight should have a disc fan of ample capacity located in one of its four walls. The fan is not essential in moderate weather, when the skylight windows can be opened freely, but in cold weather it is a necessity.

In ventilating equipments of this type there is one feature that should not be disregarded. If the amount of air, required for ventilating the place, is actually removed from the room, provision must be made for allowing the same amount of air to enter. Practically the only place where it can get into the room is at the front of the building, through the open door or the transom above. This proves very satisfactory in warm weather, but during the cold season the door cannot be left open, and, if the transom is open even to a slight extent, drafts are often created that make this part of the room extremely uncomfortable. The difficulty can be overcome by installing a sufficient amount

of direct radiation above the entrance doors just behind the transom, properly boxed and provided with ample steam connections, so drained that freezing will not occur in extreme weather. It is desirable also to have double doors at the entrance and a sufficient amount of direct radiation installed between the doors in the lobby, thus formed, to minimize drafts when doors are open.

The "self-service" type of restaurant also falls under the No. 1 classification. As a type of food-serving establishment it differs considerably from the lunch counter, but from a ventilation standpoint it naturally comes in the same classification. The "self-service" type includes the Thompson restaurants and similar establishments, where a counter is provided at one side of the room and prepared foods served to patrons from this point, the patrons carrying the same to tables in the room or eating from the arm of a chair, according to the type of restaurant in question.

The same ventilating equipment is used in these restaurants as in the lunch counter type. In some instances direct connected exhaust fans, situated in the rear walls, alone are used, but the latter are not satisfactory, as the odors from the restaurant cannot be carried above the roof line.

No. 2.—Cafeteria Type.

The cafeteria type differs from the ordinary restaurant type, from a ventilation standpoint, in that large amounts of prepared food are displayed on the various counters in the same room where the food is consumed. The kitchen is entirely separated from the lunch counter proper. The large amount of exposed food, a considerable portion of it hot, steaming and giving off odors, necessitates an ample air change in this room, and usually requires a canopy over the tables, hot plates, etc., where the food is displayed. The canopies follow in general design those provided for the kitchen range, except that they are much longer and not so wide. It is also permitted to use a much lighter metal in their construction, as there is no danger from fire in the canopies in the lunch room proper. Canopies should be of sufficient length to cover all portions of the table, where hot foods are handled and, if sufficient distribution is not obtained by the canopy, additional registers in other parts of the room may be required.

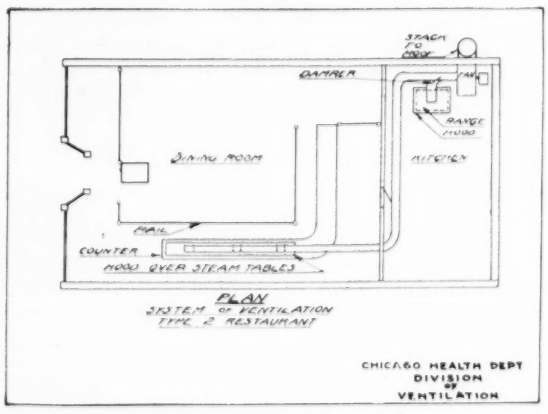


Fig. 2.—Kitchen Equipment for Cafeterias.

The amount of air exhausted should be on the basis of an eight-minute air change, which gives 7½ air changes per hour. The exhaust equipment is usually on the same unit, but, unlike the ordinary restaurant type, the air for ventilating the kitchen is not usually drawn from the dining room. Canopies are provided for the range and other fixtures, and the air from these discharged at some point above the roof, or where a nuisance will not be created.

One special feature in these installations should be mentioned. Unlike the ordinary restaurant the major portion of the cooking is not done during the lunch hour, but previous to it. A greater air change is, therefore, required in the kitchen from say 10:00 until 11:30 o'clock in the morning, and the greater amount of ventilation is required in the

Fig. 3.—Interior of a Typical Cafeteria.

dining room proper from 11:30 a. m. until possibly 2:00 p. m. The junction of the ducts from the kitchen equipment and from the dining room proper is, therefore, provided with a damper so arranged that practically the entire volume of air can be exhausted from the kitchen during the hours when the latter is in use and from the dining room during its busy period. This allows of a smaller equipment than would otherwise be the case, and proves entirely satisfactory. The remarks made in discussing drafts at entrance doors in the lunch counter type apply with equal force in the type now under consideration, even more so, as the size of the room is usually much larger, while the entrance doors may be of practically the same size. This results in a higher air velocity through the latter, and is more liable to cause objectionable drafts in the vicinity of the same.

No. 3.—Ordinary Restaurant Type.

In this type of restaurant all food preparation is in the kitchen. The kitchen is also provided with serving tables, where the orders are arranged and removed by the waiters. No food is displayed in the dining room proper, and the latter is usually entirely filled with tables. In some of the smaller restaurants a lunch counter is provided, but no food is prepared in the dining room proper. In the smaller restaurants of this type no part of the ventilating equipment is necessary in the dining room. An exhaust system consisting of canopies over the range and other parts of the equipment, or a fireproof curtain wall are provided, a blower type fan removing air from the canopies and discharging from a point above the roof, as in the lunch counter type. In cases where a curtain wall is used, a disc fan may prove satisfactory, provided the stack to the roof is not too high to introduce more resistance than the fan will overcome. An easy turn from the fan to the upper portion of the stack is essential and should be much better than that shown in the illustration.

The air change in the kitchen of an ordinary restaurant should be calculated on a three-minute basis, that is twenty complete air changes per hour. The basis for the dining room should be an eight-minute air change, or 7½ complete changes per hour, but as the exhaust equipment is located in the kitchen, it is frequently designed to give the required air change in the kitchen irrespective of what change occurs in the dining room. This is due to the fact that the air for ventilating the kitchen is drawn from the dining room through serving windows or grilles in the wall provided for

this purpose. Basing the size of the equipment on the air change required in the kitchen in this manner is by no means bad practice, as it simplifies the procedure and insures uniformly good results. The only exception would be in cases where the kitchen is much larger than usual, in which case a greater air change than is desirable would be obtained in the

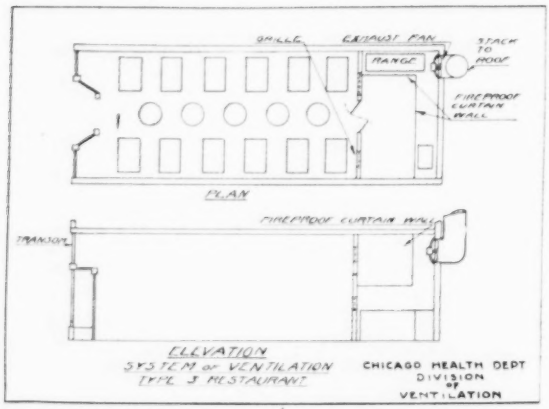


Fig. 4.—Ventilating System for Kitchen of Ordinary Restaurant.

dining room. In cases of this kind the air change in the kitchen should be reduced, as the additional space in the latter under these conditions will warrant the practice.

The same objection to direct connected fans in this type obtains as that mentioned under the lunch counter, namely, the hazard from fire, and the curtain wall method is also open to this criticism. Not only should the curtain wall be fireproof but the ceiling behind it and the outside walls as well, and suitable hose connections or fire extinguishers provided in case accumulations of soot and grease back of the curtain wall should become ignited. However, accidents of this kind should not occur, as the entire area back of the curtain wall is open and subject to frequent inspection and can be kept clean without much difficulty, and this hazard eliminated.

The large restaurants, the cabarets and places of entertainment, in the "Loop" district in Chicago, although differing

Fig. 5.—Kitchen of a Type 3 Restaurant.

materially from the ordinary restaurant, fall in the same class. Instead of having from 10 to 25 or 30 tables, they may have 300 or 400, and the number of patrons and the amount of food prepared are correspondingly large. Specific layouts for these establishments cannot be given, as each is a heating and ventilating problem in itself. Certain general requirements, however, can be mentioned. The time spent by the public in these establishments makes it desirable that better provisions be made for their comfort, and the receipts also usually make this possible.

In the dining room a supply system is practically always provided in addition to the exhaust, and in many cases artificial cooling is employed. In the kitchen a comparatively greater space is occupied by ranges and other equipment, and the greater amount of food prepared makes the ventilation problem much more difficult. In many instances it is absolutely impossible to maintain a comfortable temperature by any practical air change. The radiant heat from the ranges maintains a temperature of possibly 90 or even 100 degrees, although as high as a one-minute air change is taking place. In the "Winter Garden" kitchen, shown in Fig. 6, an exhaust equipment was first installed, giving a three-minute air change through the range canopies. This was inadequate, and an additional exhaust equipment removing air from the room directly was provided giving a one-minute air change in

Fig. 6.—Kitchen of the "Winter Garden" Restaurant.

the kitchen. Even with this the heat was intolerable. It became necessary, therefore, to install a supply system with individual ducts or spouts, discharging cooled air from the outside to practically every employe. This works fairly satisfactorily, but in extremely hot weather, even now the temperature is considerably higher than it should be for proper working conditions.

No. 4.—Hotel Type.

The hotel type restaurant differs from the foregoing in that the kitchen serves usually many dining rooms, and it is a unit by itself. Its ventilating equipment has no relation to the dining room it serves. The problem of ventilation in the kitchen is the same as that in the large restaurants just described and requires special treatment in practically every case. The hotel dining room is also a specialized problem and could not well be treated in this article. Good practice demands that all of these dining rooms be provided with a supply and exhaust equipment. In the large banquet rooms and other rooms, where smoking is permitted, a double exhaust is desirable, one at the ceiling line and the other at the

(Continued on Page 286.)

GREASE INTERCEPTION FROM HOUSE SEWAGE

Evil Effects of Grease in Sewers and Septic Tanks —How Grease May Be Eliminated From House Sewage—Grease Traps of Different Kinds

By H. J. Belmont

HOUSEHOLD wastes which pass through the plumbing system and go to sewers, septic tanks, cesspools, etc., are composed of a great variety of ingredients. Some of them are solids and some are liquids, but they all must be disposed of by water carriage through house drains to the sewers or other places of disposal.

All of these solids and liquids have their own peculiar effects on the drainage system, and in septic tanks. The excrement after a certain brief space of time putrifies and breaks up into different elements. We see this exemplified in septic tanks, non-self cleaning sewers, etc., where such solid matter accumulates. But the solid matter remaining after the decomposition has been completed is a sludge that is easily removable by water carriage. That is to say, it can be washed out. It does not stick to the walls of the sewer pipes, house drains, or septic tanks.

The organic liquid in household waste also decomposes—that is the matter held in solution by them to a large extent becomes decomposed, the residuum being also removable by water carriage.

But the grease, which enters a house drainage system, such as from a kitchen sink, performs an entirely different operation. It does not generally decompose and form an easily washed-away residuum. It sticks to the inside surfaces of fixture, traps, waste pipes, tanks, drains and sewers. So much so that chokage of these parts of a plumbing system is no uncommon occurrence.

The grease may leave the sink, in hot dishwashing water, unseen. Being in a melted condition, it is as fluid as the water. But, when it becomes cooled, as it certainly must, after it is poured into the sink and runs to the sewer, the grease congeals. It becomes a solid, which attaches itself to all surfaces colder than itself, which it may touch.

If you want an object lesson on this subject, just go into the kitchen, wash your wife's dishes, let the dishwater cool, and see how much grease will really gather on top of the dishwater and against the inside of the dish pan. Then you will never forget that great fact that grease from dish water will separate from the water and stick to the sides of the vessel which contains it; also that it will gather on the surface of the water and solidify there as the temperature falls.

If you are of an imaginative turn of mind, you will picture to yourself how repeated applications of this stuff can deposit a film of grease on the inside of a waste pipe, which may increase in thickness until the bore of the pipe becomes entirely clogged with grease and with sand and solid matter, which may cling to the grease.

And if you are of an inventive turn of mind, you may even picture to yourself some scheme for preventing such a chokage. Then you begin to travel on the right track.

It is one thing to know that a certain trouble exists, and how it occurs, but it is quite another thing to be able to remedy it.

It is the remedy we will talk about now,—ways and means of preventing chokage of waste pipes and sewers, etc., and prevention of grease accumulations in septic tanks, which is considered very detrimental to proper septic action.

Of course, it is quite possible to prevent chokage of plumbing pipes from grease accumulations by flushing them periodically with some of the drainage solvents we see advertised from time to time in the advertising pages of this journal. That is a case of dissolving the grease lining in a pipe by a solvent, and washing the residue through to the sewer,

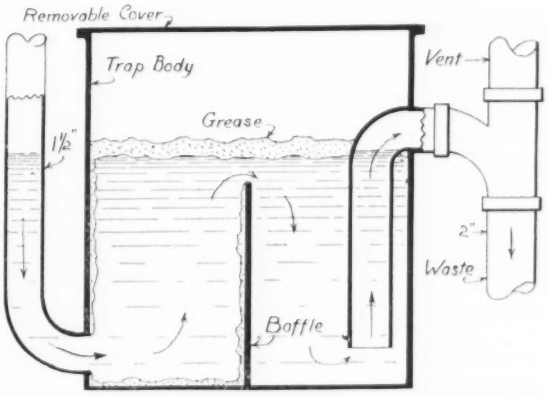


Fig. 1.

or septic tank. That plan is found to give good results providing the solvent is regularly and intelligently applied—that is—applied in accordance with the manufacturers' instructions, which is usually the correct way to do things.

But there is another way, namely the installation of grease interceptors or grease traps, as they are commonly called.

These devices intercept the grease, which is intended to be removed from them periodically. The grease is retained in the traps but the water passes through them to the sewer. It is just a simple separation process at a point as near the sink, or other point of entry of the greasy water, as possible.

The principle involved is merely one of cooling the liquid and giving the grease an opportunity to settle in the trap.

If the conditions are favorable, the trap is built right; the plumber installs it properly, and it receives a reasonable amount of attention, a grease trap will be a great success. It will positively prevent accumulations of grease in the waste

pipes, etc., and in general will be an improvement on the entire plumbing system. But all these requirements must be faithfully met, otherwise a grease trap may not only be an imperfect interceptor of grease but may become an insanitary nuisance. We think that statement is obvious to all practical plumbers who have had experience with grease traps.

The sum total of the above talk is to the effect that, when plumbers install grease traps, they must do it right. If they install them wrong then they do grease traps an injustice.

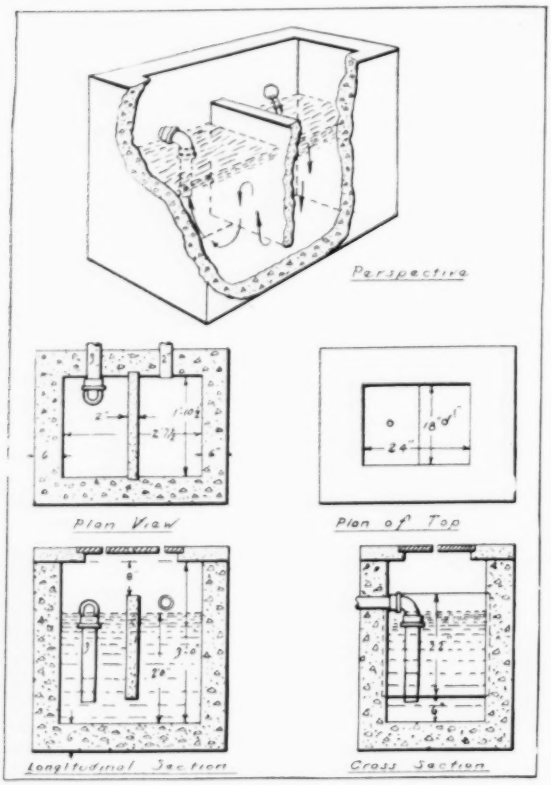


Fig. 2.

They spoil their reputation and prevent in a great measure their general use in places where they should be used. Information on the design, construction and installation of grease traps is therefore a good thing for the trade, and that is why we will now consider the matter in detail.

Different Types of Grease Traps.

Grease traps in common use may be divided into three general classes, or types, the air-cooled type, the earth-cooled type, and the water-cooled type. There may be a few, a very few traps cooled otherwise, such as by refrigeration. And there may be traps, in which grease is separated from water by centrifugal force while in a liquid state like cream from milk. But such cases, if they do exist, probably will be found in manufacturing plants, where grease is an element in manufacturing. In ordinary buildings, however, such as hotels, residences, clubs, etc., where the grease is part of the waste from sinks, etc., the above classification should hold good, and should cover the entire track.

The Air-Cooled Grease Trap.

The air-cooled type consists of those, which are fitted up in a location where air circulates around them, and which depend upon the air to cool them. Such a trap is shown in Fig. 1 and is of the kind usually set under kitchen sinks.

It consists essentially of a large body containing as much water as, or more than, an ordinary dish pan. It is provided with inlet and outlet openings arranged so that the water in trap, where the grease settles, namely the top, will not be agitated by the flow of water through the trap. The inlet or waste from sink connects into side of trap below the water line, and usually quite near the bottom, as shown.

The outlet, or waste pipe connecting trap to house drainage system also connects near bottom. This is essential as its duty is to remove the coldest water from the trap as hot grease water flows into trap from the sink.

The water at outlet opening happens to be more free from grease than that at any other part of trap as the water has to traverse entirely through trap before it reaches this point. And, in traversing, its velocity of flow is greatly reduced because of the large diameter of trap body. A large diameter of trap body means a large sectional area of flowing current, and consequently a very low velocity as aforesaid. It is this low velocity in conjunction with the elapse of time, which permits the congealed, and congealing grease to float to the top and stay there.

Note the partition or baffle in the trap. This is a necessary, though unseen, adjunct. It is located across the trap body to prevent hot greasy water from sink waste from flowing straight through trap and going to waste without being retained in the trap sufficiently long to become cooled and thus part with its grease.

This baffle receives the inflowing current square against its face, which spreads the current and also compels it to rise, flow over top of baffle, then down the other side before it reaches the outlet pipe.

In doing so it has a chance to stay in the trap and become thoroughly cooled before the next flush of greasy water.

Incidentally it happens that hot greasy water is usually discharged into trap in dishpanful doses, there being considerable time between doses.

It is quite clear then that, if the trap body is large enough to hold a dishpanful of hot greasy water, and a little more, each dose should be automatically retained in the trap until the next dose is delivered. And it is also clear that, as each dose of hot water comes in, it pushes the cold grease-free water out of the trap and down the waste pipe.

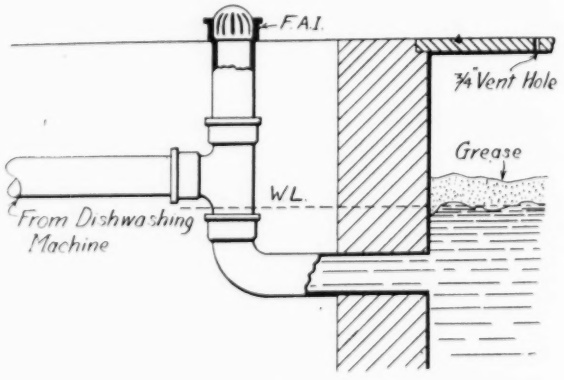


Fig. 3.

The top of trap is fitted with a lid—easily removable—for cleaning-out purposes. Once a week, or once a month, or whatever time experience shows that the trap requires cleaning, it can easily be done by lifting the cover and scooping out the grease, which may be used for soap making, or thrown away, according to its quality and the economical strain of the housekeeper. There is one point the writer wishes to draw to the attention of grease trap manufacturers, more in the form of a suggestion than otherwise, that is to make the out-

let pipe larger than the inlet pipe, and leave the trap so easy of access that nobody can have an excuse for not cleaning it.

The reason why the outlet pipe should be larger than the inlet is that the hydraulic head, obtainable within the trap, is very low, being only about 3 inches or so before the grease reaches top of trap. On the other hand the hydraulic head, which produces the flow into the trap is approximately 3 or 4 times as great. This means that the available velocity of flow in inlet pipe is greater than that of outlet pipe and consequently the inlet can deliver into the trap quicker than outlet can take it away. That means a probable flood through top of trap, when a considerable quantity of water is discharged into trap at a time.

If the outlet is made say double the sectional area of the inlet, then the trap cannot overflow on the floor, even if cover is left off.

Traps of this kind must always be back-vented, as they are not anti-siphon traps, and not re-sealing traps, even if they do have large bodies and appear like some anti-siphon traps. They are as easily unsealed as round pipe traps and must be back-vented with the same precautions as round pipe traps.

The Earth-Cooled Grease Traps.

The next type for consideration is the kind built underground. They are cooled by conduction of heat from trap to the earth. Being underground they are usually made of concrete, brick, terra cotta, or cast iron.

Fig. 2 is a working drawing of a small concrete grease trap, which the writer designed to intercept grease from the dishwasher of a hospital, and thus keep it out of a septic tank.

This trap worked well, being cleaned once every week by the orderly. The trap is built underground about 8 feet from the dishwashing machine and has a cubical content of probably twice or more of the volume of discharge from the machine.

The hot greasy water is delivered to trap at top of one chamber, at the scum line. The outlet is taken from bottom of the other chamber. Perhaps it might have been improved by introducing the hot water just below the scum as shown by detail in Fig. 3. This would help to keep the scum more

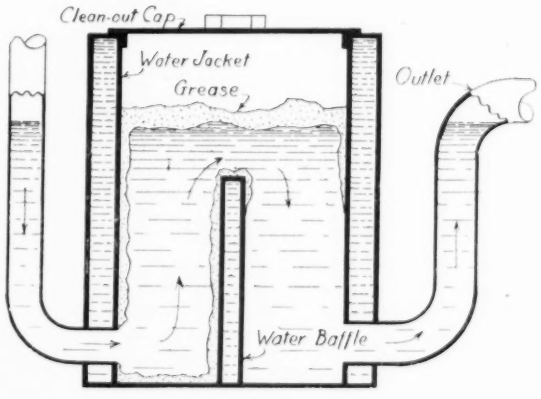


Fig. 4.

intact. As the hot water flows into trap through top inlet in Fig. 2, it, to a certain extent, re-melts and agitates the scum, which would be avoided considerably by the arrangement shown in Fig. 3. Still Fig. 2 works very well. The second chamber catches what may, through agitation, get into it.

In Fig. 3 the inlet tee is extended up to grade line and finished with some kind of a ventilating grating, F. A. 1, which not only acts as a fresh air inlet to the water line, but can be removed for access in cleaning the inlet pipe.

There are many different ways of making underground grease traps. They may be made of 24-inch tile pipe on end something like small septic tanks. But whatever way they are made they must be arranged to contain a large body of water, and be easy to clean.

The Water-Cooled Grease Traps.

The third type of grease trap mentioned is the kind which is cooled by a water jacket and is considered to be the best. This is the kind that is used on the best class of work where

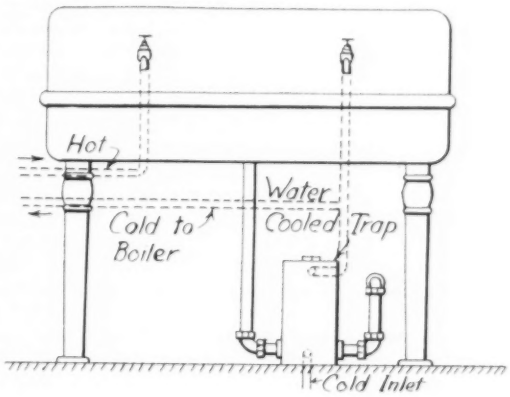


Fig. 5.

the duty is likely to be intensive, and where there is somebody detailed to take care of it periodically.

A trap of this type is shown in Fig. 4. It is the same in principle as Fig. 1, but the cooling of the grease is hastened by a cold water jacket around the trap body.

This jacket is tapped at top and bottom to connect with the cold water supply to sink and range boiler. The pipe from main connects to bottom of jacket. The top tapping connects to sink and range boiler, substantially as shown by dotted lines in Fig. 5 which shows such a trap connected up.

The cover of a trap of this type is usually screwed or clamped down water-tight. The grease is quickly congealed by the cold jacket. It sticks to the sides of trap and has to be scraped off, when trap is being cleaned.

The cubical contents of this type of trap does not require it to be as large as that of air-cooled, or earth-cooled traps because of the high efficiency of the water jacket as a cooler. Yet it should be large enough in capacity to contain a complete dose of dishwater.

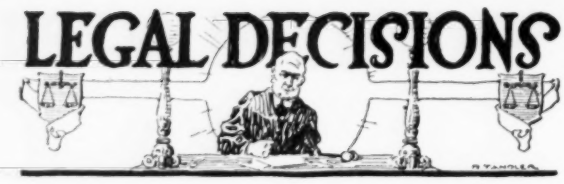
Now for some capacity calculations.

The quantity of water required for an ordinary family dishwashing is about two gallons or less per dose. There may be two doses about ten minutes or less apart in one dishwashing. This means a maximum of about 4 gallons in 10 minutes or less! An ordinary grease trap of the air-cooled, or earth-cooled type cannot cool enough to congeal all the grease in that short space of time. Therefore a trap for such service should be able to contain all the water from both doses. Then it will be in position to hold all this water until the next dose comes along. It should not come till the next dishwashing, which probably will be five or six hours later. During that time the contents of trap will cool, and the grease will be separated and collected in the trap.

Of course there will be small intermittent doses of waste water into the trap during that interval, but they usually are small—not enough to entirely dislodge the dish water from trap before it has been cooled.

According to the above reasoning, then it seems reasonable to assume that an air-cooled grease trap under a sink in an

(Continued on Page 285.)



Title to Heating Plant.

The Supreme Court of Minnesota says, in Cohen v. Whitcomb, 170 Northwestern Reporter, 851, an action for injunction brought by a landlord against a tenant, that the defendant (tenant) had installed a hot-water heating plant in the leased premises, the furnace and boiler of which plant were placed in the basement upon a foundation built level with the floor. The pipes in the basement were hung on loop chains; above the basement the radiators and pipes were hung on brackets screwed to the wall; the feed pipes passed through openings in the floor, around which were placed escutcheons; and the tile floor was built up snug to the openings. The pipes and other parts were connected by means of ordinary couplings and bolts, so that the plant could be taken apart without in any way injuring the building.

Shortly before the expiration of the lease the defendant disassembled the plant preparatory to the removal thereof, whereupon the plaintiff brought this action to enjoin him from so doing, and for damages to the freehold. The defendant, by way of counterclaim, set up that he was the owner of the heating plant, and that the plaintiff had unlawfully converted the same to his use, and demanded damages therefor.

The lease contained a provision that "any improvements, repairs or alterations" made by the tenant should become the property of the landlord and not be removed at the termination of the lease.

What was meant to be understood by the words "improvements, repairs or alterations" seems to be indicated and limited by a later clause in the contract, which provided that at the termination of the lease "no part or appurtenance of the said buildings shall be removed," clearly implying that all articles not appurtenant, not a part of the realty, might be removed under this lease, it was the "improvements, repairs or alterations, made in or to said building," that were to be left. The improvements, in order to come within the provisions, must have been to the building, to the realty. They must have been to the leased premises, so that the condition and value thereof were improved. The term could hardly be said to mean or include articles which had not been treated so as to connect them with the realty.

The clause under consideration, when taken in connection with the other provisions of the lease, gave to the landlord only those improvements, repairs, or alterations which became a part of the realty and had no reference to removable fixtures. If the heating plant were a removable fixture, placed in the building by the tenant with the evident intention of removing it at or before the expiration of the lease, then the plaintiff would not be entitled to recover in this action. Whether the heating plant was so affixed to the realty as to become a part thereof was a question of fact for the jury.

The removal of the plant left the building in just as good condition and repair as it was in at the time of the making of the lease. Had the building contained a heating plant at that time, quite a different question would have been presented. In that case the presumption would naturally have been that a new plant was a substitution for the old and should have been left upon the premises. Unless the plant became a part of the building, it is difficult to understand how it could constitute an improvement thereto, as that term was used in the lease. The Supreme Court thinks the trial court properly submitted the question to the jury. No exception was taken at the trial ,and the Supreme Court sees no reason for interference.

Wherefore, the Supreme Court affirms a judgment for $708.22 in favor of the defendant (tenant).

Finality of Written Contract.

A written contract ended with the words: "This contract is irrevocable, and no conditions affecting it not embodied herein exists." The Supreme Court of Wisconsin holds, Edward T. Kelley Co. v. Zakobiel, 171 Northwestern Reporter, 75, that oral testimony was not admissible to change materially the written contract, by making it conditional, instead of absolute, and by incorporating conditions expressly negative in the writing itself. Written contracts cannot be so contradicted by parol testimony.

The court says that its attention was called to the rule of law that permits the entire contract to be shown, though a part of it rests in parol or oral testimony. That rule is operative only when there is no vital contradiction between what is expressed in the writing and the oral agreement. But this contract said it was entire. To prove the contrary would be to contradict the writing.

The court was also reminded that it may be shown by parol or oral testimony that an instrument was given on condition, and that such condition had not been satisfied. No doubt such is the rule as to writings that are consistent with such proof. But this instrument said it was irrevocable, and that no conditions existed not expressed therein.

Finally it was urged that a collateral agreement, which was the inducement for entering into the written contract, might be shown by parol or oral testimony. No doubt it may in a proper case, but not where the written contract expressly negatives any collateral agreement, and no claim is made that the signature thereto was obtained by reason of duress, fraud, mistake, or excusable neglect.

The law seeks to protect both parties to a written contract. Hence, when a writing speaks plainly, and declares itself to be the entire contract, and is complete in itself, when it negatives prior or contemporaneous oral agreements, when it says there are no conditions existing not expressed therein, and that it is irrevocable, it must be held to contain the entire agreement between the parties, or else written contracts would become mere scraps of paper, subject to the same infirmities of self-interest, forgetfulness, and misunderstanding that attend oral agreements. It is for the purpose of avoiding these infirmities that written contracts are entered into, and it is in the furtherance of justice and honesty that the law declares that what a man has plainly asserted under his own signature he should not be permitted to deny, except upon proof of duress, fraud, mistake, excusable neglect, or some other adequate cause.

One Advantage.

"I like hot weather, don't you?"

"When it gets too blamed hot to work."—"Boston Transcript."

Lost Savagery.

A London scientist attributes all human savagery to the iniquitous habit of eating meat. At the present price of meat, savagery probably is on a sharp decline.—"Grand Rapids News."

STANDARDS *for* FACTORY WASH-ROOM FACILITIES*

By Louis A. Coolidge, Chairman of The Welfare Division of The Committee on Labor, a Part of The Advisory Commission of The Council of National Defense

CONSERVATION of the health of workers engaged in making munitions and supplies, as well as ships in which to transport them, was one of the primary war efforts of the Welfare Division of the Committee on Labor, a part of the Advisory Commission of the Council of National Defense. As a part of the educational program, Samuel Gompers, Chairman of the Labor Committee, circulated standards for employes' washrooms and other sanitary devices. Louis A. Coolidge, himself an employer, was chairman of the Welfare Division, whose Section on Sanitation developed this code especially designed for high explosive plants and to guard the workers against industrial poisons. After several conferences, representatives of the industry especially concerned agreed to adopt the rules and regulations as the practice for their various plants.

The cordial feeling of employers toward the endeavors of the Committee on Labor and its relation to war emergency is indicated by the following statement by Dr. William A. Evans, under whose Sanitation Section the Divisional Committee on Industrial Diseases and Poisons operated. He said when recommending the committee's report for acceptance:

"In most states it will be impossible to secure the requirements for the conservation of health of labor that will be necessary in those industries that are speeded up by purposes of war. Legislatures meet at long intervals and the securing of laws is a slow procedure. The only possibility that we can see of getting action immediate enough to be of service is through the agreement of the interested parties to adopt the rules laid down. The conferences were attended by more than one hundred representatives of manufacturers of high explosives, those loading high explosives and making war material."

The standards, which are given below, are applicable to factories in general. Installations of this character will not bring undue hardship to the employer whose working conditions are not equivalent to such regulations. They are a little better than the requirements of any state law. Among the expert members of the committee who assisted in their development were: Dr. W. G. Hudson, Chairman, Wilmington, Del.; Dr. R. P. Albaugh, Columbus, O.; Dr. George Apfelbach, Chicago, Ill.; Dr. Lewis Booker, New Castle, Del.; Col. Lewis T. Bryant, New Jersey State Commissioner of Labor, Trenton, N. J.; Dr. E. R. Hayhurst, Columbus, O.; Dr. F. D. Patterson, Department of Labor and Industry, Harrisburg, Pa.; Dr. J. W. Schereschewsky, U. S. Public Health Service, Pittsburgh, Pa.; Dr. W. Gilman Thompson, New York City; Dr. Alice Hamilton, Bureau of Labor, Washington; Dr. B. S. Warren, Public Health Service, Treasury Department, Washington, D. C.

The standards follow herewith:

*By Courtesy of "The National Civic Federation Review."

Washing Facilities.

There should be provided by the employer without expense to the employe one (1) wash basin for every five (5) persons up to one hundred (100) on a shift; one (1) wash basin for every eight (8) persons between one hundrew (100) and five hundred (500) on a shift and where there are over five hundred (500) persons on a shift, the wash basins should be one (1) for every ten (10) persons on a shift.

Or, there should be two (2) feet of trough for every five (5) persons up to one hundred (100) on a shift; two (2) feet of trough for every eight (8) persons up to five hundred (500) on a shift, and where there are over five hundred (500) persons on a shift there should be two (2) feet of trough for every ten (10) persons. Where double-sided troughs are used, half the above trough space should apply.

It is recognized that where the trough is used, there should be flowing water and no stoppers. It is the part of wisdom to provide one faucet for every five persons. In practice it has been found that shower baths may be substituted in part for such faucets.

Continuing, the standards also provide that:

Where there are ninety (90) persons or less on a shift there should be one (1) shower for every fifteen (15) persons; ninety (90) to five hundred (500) persons on a shift, there should be one (1) shower for every twenty (20) persons; five hundred (500) to one thousand (1,000) persons on a shift there should be one (1) shower for every twenty-five (25) persons; and when there are one thousand (1,000) to five thousand (5,000) persons on a shift there should be one (1) shower for every thirty (30) persons. There should be provided hot and cold water, soap and fabric or paper towels.

Toilet Arrangements.

1. GENERAL PROVISIONS: Toilet facilities should be provided in accordance with the following standards:

2. APARTMENTS:

(a) *Location:* All toilet facilities should be located conveniently to and easily accessible from all places where persons are employed.

(b) *Separation:* Toilet rooms for each sex should be maintained separate and apart from each other and from all workrooms and passageways. Such rooms should be marked so as to designate plainly and distinctly the sex for whose use they are intended.

(c) *Screening:* If the water closet is not located within a separate screened compartment in the toilet room, entrance to all toilet rooms should be provided with a screen to insure privacy. This screen should be at least six (6) feet in height, and extend to within at least four (4) inches of the floor, and, if the space permits, should not be less than two (2) feet wider than the door leading into such toilet room.

(d) *Distance:* All toilet rooms not having sewer connection and maintained outside of buildings where people are employed should, on new installations, be at least twenty-five (25) feet from such buildings and in all factories where the workers are exposed to excessive heat, humidity, or fatigue from physical exertion, there should be a covered passageway connecting said building with toilet or toilets.

(e) *Construction:* The outside partitions of all toilet rooms should be of solid construction and may be opaque or translucent, but not transparent, and should extend from floor to ceiling or such rooms should be independently ceiled over. All partitions separating toilet rooms provided for the different sexes, should be at least two (2) inches in thickness and constructed of such materials as are not transparent or translucent, and they should be sound proof, and no openings in such partitions should be permitted.

(f) *Floors:* The floors of all toilet rooms should be tight, smooth and constructed of a substance that should be impervious to moisture.

(g) *Walls:* The walls of all toilet rooms should be tight and of substance that can be readily cleaned and kept clean.

(h) *Ceilings:* In those toilet rooms which have ceilings, the ceilings should be tight and of such substance that they can be readily cleaned and kept clean.

(i) *Light:* All toilet rooms and water-closet compartments should be adequately illumined by natural or artificial light.

(j) *Ventilation:* All toilet rooms not lighted by windows that open easily should be adequately ventilated to the outside air by artificial means. Similar methods should be employed for every water-closet compartment entirely separated from the remainder of the toilet room by partitions extending from the floor to the ceiling, and not provided with a window opening easily.

On new installations, every toilet room or every water-closet or urinal compartment should have a window opening directly to the outdoor air. No such window should be less than one (1) foot wide, nor have an area of less than six (6) square feet, measured between stopheads, for one water-closet or urinal. For every additional such fixture, the area of such window should be increased at least one (1) square foot. A skylight should be deemed the equivalent of a window, provided that it has fixed or movable louvres with openings of the net openable area prescribed for such window.

Every such window should open upon a street or upon a yard or open space, uncovered at the top, which in its least horizontal dimension, should be at least one-tenth (1-10) the height of the highest abutting wall, but in no case less than six (6) feet.

(k) *Heating:* All toilet rooms and wherever practicable, water-closet compartments, should be adequately heated at all times.

(l) *Cleanliness:* The occupier should be responsible for the maintenance of all toilet rooms or water-closet compartments in a clean and sanitary condition.

(m) *Entrances:* All toilet facilities should be adequately protected to prevent the entrance and breeding of flies, as far as practicable.

Fixtures.

(a) *Kind:* The use of any form of trough water-closet or latrine or school sink should be prohibited—individual closets should be provided. The bowls of the water-closets shall be of smooth, impervious material. Pan, plunger, washout, faucet and long hopper closets should not be permissible. The seat should be finished with a smooth, impervious waterproof substance. Types of chemical closets or other closets which are approved by the properly constituted authorities should be permitted.

(b) *Connections:* The disposal of all contents of toilets and urinals should be in accordance with the laws, rules and regulations of the properly constituted authorities of the locality in which they exist. Provision should be made for the adequate flushing of every water-closet.

Privies should be permitted only in cases outside of the sewer zone, and where cesspool, septic tank, or chemical closets or other closets which are approved by the properly constituted authorities, are not practicable. Privies not connected with the sewerage system should be built in accordance with the standards recommended by the properly constituted authorities.

(c) *Number and Ratio:* When there are one hundred (100) or less persons on a shift there should be one (1) toilet (closet) for every twenty (20) persons (in practice it has been found advantageous to provide one closet for every fifteen persons); when there are one hundred (100) to five hundred (500) persons on a shift, there should be one (1) toilet for every thirty (30) persons; where the are five hundred (500) to one thousand (1,000) persons on a shift, there should be one (1) toilet for every thirty-five (35) persons, and when there are one thousand (1,000) to five thousand (5,000) persons on a shift there should be one toilet for every forty (40) persons.

Urinals.

(a) *Kind:* Urinals should be either individual or slab. At least two (2) feet of slab should be considered the equivalent of one (1) individual.

(b) *Construction:* All urinals should be composed of smooth material, impervious to moisture.

(c) *Connections:* All urinals should be connected by means of waste pipes to sewers or cesspools which sewers or cesspools should be constructed in accordance with the laws, rules and regulations of the properly constituted authorities of the locality in which they exist.

Unless water runs continuously over the walls of a urinal, each urinal should be provided, wherever practicable, with an adequate water flush. When individual tanks are used, the flushing should be accomplished by pedal action, or if water flush is impracticable, then with other proper means for cleanliness and safety.

(d) *Number and Ratio:* One (1) urinal or its equivalent should be provided for every fifty (50) men on a shift.

(e) *Entrances:* All urinals should be adequately protected to prevent the entrance and breeding of flies, as far as practicable.

In practice it is recognized that separate urinals should be arranged throughout the work places convenient to the points where the men work.

The Federal Reserve Board states, that during the month of July confidence in continuation of business activity has been maintained and a further expansion in many lines of industry has been noted. The volume of trade, both wholesale and retail, has continued to grow, and there has been increased activity in some of the basic industries. The agricultural outlook on the whole is favorable, although indications point to shorter cotton crop than forecast earlier in summer. The large volume of speculation, which occurred during month of June, after slight recession toward the close of that month, has again resumed its upward course, and both industrial and railroad shares attained higher levels. On the whole, general industrial situation is favorable, and prospects are bright for continued business activity in leading lines.

"The Wall Street Journal," states in an article on "Textiles in Reconstruction," that by reason of cotton crop, running from 60 to 65 per cent of world production, United States is interested in the resumption of European cotton spinning more than in any other textile.

QUESTIONS & ANSWERS

HOW TO SUPPLY EITHER OUTSIDE OR INSIDE AIR TO INDIRECT RADIATOR.

Editor "Domestic Engineering":—I want to use an indirect radiator under the entrance hall of a residence and wish the air supply to the radiator to be arranged in such a manner that I can use air from the outside or air from the inside by recirculating it. Please suggest a method of installing the air ducts so that the air supply can be taken from the outside or inside as may be desired. Is it best to use a floor register for the warm air or should the register be placed in the wall?

Pennsylvania. G. F. S.

Without a floor plan of the residence showing the size of the hall and the position of doors, staircase, etc., it is hardly possible to give correspondent a detailed design showing the method of installation.

We assume that he is familiar with the method of installing and casing a stack of indirect radiation. The position, it should occupy in the basement, will depend somewhat upon the location of the hot air register. This may be placed in the floor of the hall if desired. We think, however, that

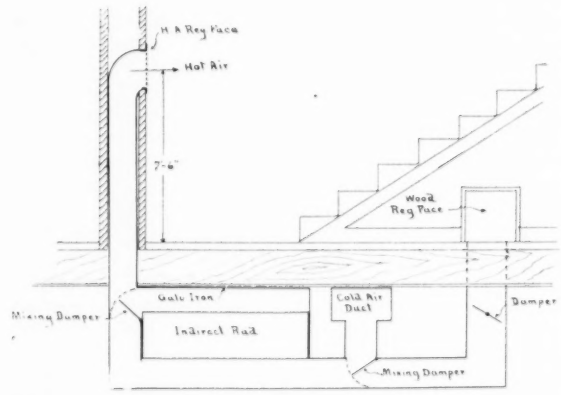


Fig. 1.

the best position for it is in the side wall of the hall at a point from seven to eight feet from the floor, or well above the breathing line. It should be placed well towards the door entering into the vestibule. The register for recirculating the inside air should be located by the side of the staircase. We suggest that it be placed as shown on the illustration Figure 1. The waste space under the lower part of the stairs may be used as an air chamber from which the recirculating duct can be connected. A wood register face is particularly desirable for this work as it can be finished to correspond with the wood trim of the hall and makes a very neat appearing piece of work. The cold air may be taken from the nearest convenient window in the basement, and the sash of this window should be altered to accommodate the cold air duct. The entire duct work and the casing for the indirect radiator should be constructed of heavy galvanized iron, and it is well to provide a slide door in the bottom of the casing for purpose of cleaning.

On Figure 1 we assume the position of radiator and register and show a simple method of installing the ducts. Mixing dampers, properly placed, should be provided and also a close fitting damper in the recirculating air duct as illustrated. By using these dampers in the proper manner the air supply can be nicely regulated. The hot air mixing damper between the indirect and the hot air register may be arranged for automatic thermostatic or hand control, as required.

On our illustration just a suggestion of the staircase is shown in order that the position of the recirculating register face may be noted.

An installation of this kind may easily be arranged for summer ventilation, and, while correspondent does not ask it, we consider it of sufficient importance to describe the method. The hot air register face can be removed in summer and in its place a small propeller ventilating fan, set in a frame corresponding in size to the wall opening, can be installed. A wire connection from a side wall light or a special wire connection can be made to the fan to operate it. With this arrangement a quantity of fresh air may be admitted to the rooms.

AN APPEAL FOR BETTER PLUMBING IN COLUMBUS, GA.

Editor "Domestic Engineering":—I wish to bring to your knowledge an item in connection with installing some plumbing in an addition to one of our most prominent hotel buildings here. The plumbing contractor advised our plumbing inspector that rather than use lead stubs, or bends, for closet bowl connection through floor, to connect to cast iron end of pipe at floor, that this was necessary as precaution against the concrete and cement work damaging waste at floor where lead would be used.

There is no floor flange of any kind, as I understand, being used in the above case.

We also have two other cases here in wooden frame cottages, where the plumber connected earthenware closet bowls with plain end cast iron pipe at floor, and said he did this as he had no combination ferrules long enough, also as others were doing jobs similar.

I am in the business, conducting one of the oldest plumbing shops in this place, and was not aware before of jobs being done in any such manner. I have always been able to take care of the lead waste at floor to receive closet bowls in buildings where cement or tile floors were being used, and for such a stunt being pulled off with an inspector why any sensible, half-practical person connected with such work can readily see it is a matter of saving cost of lead connections and at same time giving a poorer job, according to my judgment. I am anxious that you make reply to this through your publication at the earliest convenience, from a practical sanitary standpoint, publishing any part of this letter in connection with your reply that you see fit.

Would also ask that you express your views on the use of a small, or even a size 4 by 8 inch cast drum trap with 1¼ inch wrought, not recessed, nipples and fittings for waste to tubs.

Thanking you for enough of your valuable time and space to reply to this for the benefit of myself as well as others.

Columbus, Ga. Subscriber.

We understand that the first case mentioned by "Subscriber" is similar to Figure 1, shown herewith. This shows

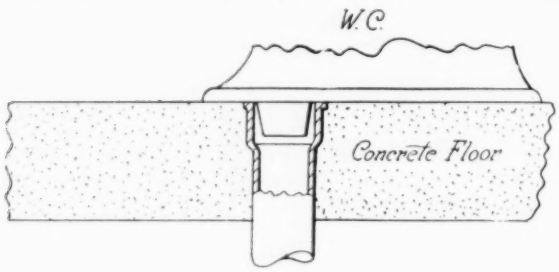


Fig. 1.

a 4-inch cast iron soil pipe extending up through a concrete floor and finishing flush with it.

We do not consider this to be sanitary, unless some kind of an appropriate brass floor flange is calked into the hub and arranged to be bolted to the closet, or otherwise made secure.

It is an established fact of many years standing that connections of this kind are not reliable. They may not leak actual sewage. But they do leak sewer gas, as has been demonstrated by smoke tests on old work. We advise against connections of this kind.

Regarding the second case, namely setting closets on plain ends of cast iron pipe without flanges in frame buildings, we say this practice is worse than the other, as woodwork shrinks and swells, thereby loosening to a great extent all closet connections made that way.

The fact that a plumber may not have proper materials to make a proper job is no excuse at all. It is every plumbing contractors' duty to furnish proper materials for the work. The plumbing inspectors' attention should be drawn to this case, he will no doubt condemn it, and see to it that the work is done in a proper manner.

If your code allows such work, we advise changing the code so as to compel the use of proper floor flanges.

We see no reason why master plumbers in Columbus, Ga., should not be able to install lead closet connections with brass floor flanges, as well as master plumbers elsewhere throughout our great country.

It surely cannot be mechanical incompetence on their part. We are prone to believe that your opinion is correct. It appears to us that these plumbers are practicing what is generally known as "skinning"—and that the reason they do so is because the inspector does not make them "toe the line" and go by the code.

Regarding the use of a 4 by 8 inch iron drum trap with 1¼-inch iron pipe waste, and plain unrecessed fittings for tub wastes, we must say that while the traps themselves may be quite satisfactory, the pipe connections are miserably poor. Such connections would not be permitted in any city where even a reasonable amount of attention is paid to the city's sanitation. Every plumber knows that recessed fittings and reamed pipe ends are necessary for sound satisfactory work.

Furthermore, we consider 1¼-inch too small for a set of tubs. It should be 1½-inch at least. Judging by "Subscriber's" letter we think it is time for the Master Plumbers' Association of Columbus, or vicinity, to get together and do something to improve domestic sanitation in that neighborhood.

PUBLIC COMFORT STATIONS.

The U. S. Public Health Service, through the U. S. Railroad Administration Bureau, asserts that America is the only modern country which throws the burden of providing public comfort stations upon private initiative.

This conclusion is rendered after the committee on health and medical relief had made an extended survey of sanitary conditions as relating to railroads. This survey included investigation of conditions at stations and depots as well as matters of proper drainage of areas through which the roads run, due to obstructed ditches along rights of way, high culvert bottoms, mosquito breeding holes and pits, responsible for the spread of malaria infection, etc.

The committee also found that the water closets in railway stations throughout the country were, as a rule, in worse sanitary conditions than were the lunch counters; and this alone should indicate how bad they are. As to the water closets, however, the committee's report says that in many places they were so filthy as to transgress all rules of decency. And even in the large cities there was a disgraceful lack of care and attention needed to keep toilet room fixtures in sanitary working condition.

As a result of the work of the committee, it is now drafting a set of sanitary rules and regulations for railroad stations, shops, trains, etc., which, when completed, will be submitted to the U. S. Public Health Service for approval and adoption throughout the country. The health officers, state and municipal, will also be asked to co-operate to the end that a standardized set of rules for all such places may be posted and enforced, and which will do away with the many drastic and oppressive regulations sought to be enforced by local health authorities.

Commenting on this matter Dr. John Dill Robertson, Health Commissioner of Chicago, says: "While it is conceded that the installation and proper maintenance of adequate toilet facilities in railroad stations and depots is a matter of public concern and comfort, yet the fact that the saloon is passing out of existence, should serve to emphasize the need for more and conveniently accessible public comfort stations, not only in Chicago, but in most, if not all of the cities of the United States. In Chicago the need is particularly acute, and unless measures are taken for speedy action will grow worse instead of better. At present the city has only five public comfort stations in the loop, two in the City Hall, two at the Public Library and one at Market and Madison Streets. There is, however, an unexpended balance of $142,000 to the credit of the public comfort station fund, which now that all building restrictions have been removed on account of war conditions, will no doubt be used during the present year."

To Celebrate the Armistice.

The Red Cross will need more money to meet the greater demand for relief next year. For this reason an appeal for funds will be made next fall to coincide with the anniversary of the armistice, so that the American people can show in a practical manner their thanksgiving for deliverance from the horrors which less fortunate people were unable to escape.

Duluth, Minn.—Strum Bros., 401½ East Superior Street, will install plumbing and heating equipment in three new residences to be built in the near future.

LEGAL QUESTIONNAIRE

*On What Basis Am I to Sue for Damages Where a Customer Refuses to Carry Out a Plumbing Contract? This Question is Here Answered in a Most Careful Manner**

By "The Judge"

What Is the Measure of a Plumber's Damages When a Customer Refuses to Carry Out a Contract?

Editor "Domestic Engineering":—After signing a contract in writing for the installation of a plumbing system in a new house, one of my customers has refused to go on with the agreement because obstacles have arisen in connection with other sub-contracts. No work has been done under the contract, and while I have ordered some of the stock, it has not been delivered, and I have found out that I can cancel my orders for the stock.

This contract is a considerable one, involving an apartment house, and I want to know upon what to base my claim for damages for the breaking of the contract by the owner. I shall insist upon damages if the sum, which would be allowed me, is of sufficient size to make it worth my while to go after it.

W. S. H.

Answer:—"Damages", in its legal sense, may be defined as meaning the compensation which the courts will award for an injury done. "General damages", as distinguished from another kind of damages called "special damages" are the damages which are naturally and necessarily the result of the wrong done, although this does not mean that they must inevitably result from a given wrong. General damages in the case of a breach of contract, are such damages as the law implies or presumes from the breach complained of. In like manner, in actions of tort such as suits for slander and libel assault and battery, accident cases, and the like, general damages are such as are not caused by any incidental fact or by the peculiar situation and circumstances of the party injured, but are the natural and uniform effects of the injury.

Special damages, as distinguished from general damages, are those which are the natural, but not the necessary, consequence of the wrong done to the plaintiff. They are such as actually result from the wrong but are not such a necessary result that they will be implied by law.

While it is not always easy to distinguish between these two classes of damages, perhaps the following illustration will convey the difference. Suppose that some slanderous remarks are made about the professional ability and learning of a physician. In awarding general damages the jury would take into consideration the loss which the doctor had sustained in his practice; and such damages would be the kind of damages which would naturally result from a doctor's loss of reputation in a community. On the other hand, if the doctor had been appointed to some honorable public office, such as a state board of health, with a considerable salary attached thereto, and if he had lost such a position or the prospect of such a position, he would plead that he had suffered special damages, because of the loss of the honor and salary connected with his appointment, and special damages would be awarded to him in addition to the general damages.

The award of damages in a civil action, such as yours will be, if you bring suit, would be a just compensation or indemnity for the loss which you have suffered by the refusal of your customer to go on with the contract. We sometimes hear of nominal damages, such as damages of one cent. This simply means that a person has suffered a wrong or the infringment of a right, for which the law will compensate him; but has not suffered any actual damage.

In the first place, in your case, the measure or elements of damages, according to the general rule, are regarded as controlled by the law of the place where the contract is to be carried out. That is, if you make a contract in Maine, to be performed in California, the law of California will, generally speaking, be the law under which your case is decided. This does not mean that you will have to go to California to try your case in court, but simply that the law of California will be introduced as the law of your case, in whatever state your trial is held. The rule is different in an accident case, for instance, in which event the law of the place where the accident happened will govern the damages.

A wrongdoer, your customer as an example, is liable to the person injured for all the natural and direct or proximate consequences of his refusal without right to carry out his contract, but remote consequences of his refusal to go on with the agreement do not afford a proper basis for an award of damages. For instance, although it might be a fact that because of your loss occassioned by your customer's refusal to carry out the contract, you were unable to undertake other work, you could not bring that fact into a suit against your customer for the purpose of increasing your damages, because such a fact is too remote a consequence of your customer's act.

When we speak of the proximate consequences of a wrongful act, we mean such consequences as are usually the ordinary and natural consequences. As applied to the law of damages the term "proximate cause" is incapable of any strict interpretation definition, which will fit every case. Broadly speaking, the proximate cause of a loss is where there is an unbroken connection between the act and the damage. Although the subject is one capable of much subtlety of reasoning, the Courts generally favor practical rather than theoretical distinctions and will not indulge in refinements which would defeat the claims of natural justice.

As has been said regarding damages in a case like yours: "The damages, to which one party to a contract is entitled because of a breach thereof by the other, are such as arise naturally from the breach itself, or such as may reasonably

*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the very Nature of the Service, which is rendered without a personal Interview.—Editor.

be supposed to have been within the contemplation of the parties at the time of making the contract as a probable result of a breach thereof. Conversely, damages which do not arise naturally from a breach of the contract or are not within the reasonable contemplation of the parties, are not recoverable. The rule is the same whether the contract is violated by an act of commission or omission, and without regard to the motives of the party breaking the contract. In its application it is held that the parties will be presumed to have contemplated that the party injured by the breach of the contract would sustain such damages as would fairly and substantially, in the usual course of things, result from such breach, in the light of all the facts known, or which should have been known to them. It is not necessary that the parties should actually have contemplated the very consequences of the breach, for which action is brought, and an actual breach of the contract may not have been in the mind of either of the parties when the contract was made. It is not necessary that the parties shall have contemplated or considered the consequences at the time of making the contract, but the consequences must be such as the parties may fairly be supposed to have considered, or at least would have considered as flowing from a breach of the contract, if they had been informed of all the facts."

It sometimes happens that damages, arising out of special circumstances surrounding the contract and different from those which would naturally and probably flow from the breach of such a contract, may be recovered, where it is shown, at the time of making the contract, that the defaulting party had knowledge of such special circumstances. In order that knowledge of special circumstances may increase the liability arising in the case of breach of contract, it must be brought home to the party sought to be charged under such circumstances that he must know that the person he contracts with reasonably believes that he accepts the contract with the special condition attached to it. Mere notice, as such, does not have the effect of rendering a party liable to more than ordinary damages, and obviously notice given after the contract is made is not sufficient.

Let us suppose again that you were unable to take a contract with another customer, because of the loss of profit due to the breach of contract by your first customer. Under certain circumstances, if your first customer knew that you took his contract at a low figure, for instance for the very purpose of entering into the second contract, and your first customer agreed to this situation, he might be liable for the damage suffered by you because of your loss of the second contract, as well as for your loss under the first contract which was with him. Along this line it has been ruled: "As a general rule the right to recover damages is limited to such damages as arise out of the contract, on which the action is founded, and a recovery cannot he had for damages or losses resulting out of collateral contracts or transactions affected by the breach of the contract sued on, although they may have been entered into upon the faith of the principal contract. Where, however, the collateral contract was in the contemplation of the parties to the original contract when it was made, the latter being made with reference to the former, there may, upon breach of the particular contract be a recovery in damages for the losses sustained or the gains prevented with reference to the collateral undertaking; and it is immaterial whether the particular contract is entered into for the purpose of enabling the plaintiff to comply with a former contract already made, or whether the contract, for the breach of which the action is brought, was made for the purpose of enabling the plaintiff to enter into a future contract within the contemplation of the parties. Further, it is not necessary that the precise terms of the collateral contract be disclosed to the party to the principal contract, except in so far as it contains special features likely to affect the party's action, or which render the consequences of the breach extraordinary."

It is well that you took prompt action in the matter of countermanding your orders for stock, for it is held that there can be no recovery for losses which might have been prevented by reasonable efforts on the part of the party injured. The efforts, which the injured party must make to avoid the consequences of the wrongful act or omission, however, need only be reasonable under the circumstances of the particular case, his duty being limited by the rules of common sense and fair dealing; nor is he required to anticipate that the wrong will be committed. A failure to attempt to mitigate damages will not bar plaintiff entirely from a recovery, but will prevent the recovery of such damages as might have been avoided by reasonable efforts on his part. If you had failed to countermand your orders in time simply because you wanted to catch the 12:15 train Saturday afternoon, instead of the 1:15 train, you probably would not be allowed to recover for any loss occasioned by your failure to countermand. As has been held: "Where a party is entitled to the benefit of a contract and can save himself from loss, arising from a breach thereof at a trifling expense or with reasonable exertions, it is his duty to do so, and he can charge the party in default with such damages only as with reasonable endeavors and expense he could not prevent. This rule is especially applicable where one of the contracting parties has acquired notice of the breach of contract and makes no effort to lessen the damages claimed.

A practical way to arrive at the damages which you will probably recover against your customer, is to estimate how much ahead of the game you would be if the contract had been carried through. Such an estimate, if fairly made, will be somewhere near the amount of the award of damages in a suit at law.

In this connection, remember, that you should include all costs in arriving at your expenses, and costs include "overhead." A couple of years ago a contractor sued upon a cost plus contract and the court ruled that "cost" included the charges for overhead.

The problem of good roads and motor trucks must be regarded from the standpoint of a public utility, according to R. E. Fulton, vice-president of the International Motor Co.

The problem of production is practically solved, so far as manufacturing is concerned. The problem that confronts us now is that of distribution. Upon the solution of it hinges our whole political, economic and social structure. Transportation is one of the great essentials to distribution.

With adequate transportation facilities, food, merchandise, machinery, etc., can be transported quickly and economically to the point where there is a demand for them. Anything that handicaps getting food to the market is a barrier which prices must surmount. It means still higher cost of living and a loss to everybody. Everyone benefits from the service rendered by motor trucks regardless of who operates them.

It is a fact which everyone recognizes that the motor truck is the only solution of the transportation problem. Everything should be done to render the operation of motor trucks more efficient and economical. Good roads are the chief factor. Roads must be built up to the demands of the traffic. The traffic cannot be held down to existing road conditions.

If a city has outgrown its water supply, we do not limit the population, we increase the capacity of the water mains. Just so with highways. We must increase their capacity. The greater the volume of transportation handled the lower the transportation costs.

WINDOW DISPLAYS *in* ENGLISH PLUMBING SHOPS FAR BEHIND THOSE *in* AMERICA

Overcrowding Is the Chief Fault in the Average Establishment Throughout England

By I. R. Merritt

CONCENTRATION is an unknown word in the English plumber's vocabulary. He makes the window his stockroom. If there is anything he has in stock that is missing from his window, I would like to know just what it is. The floor is one mass of articles, while the shelves above are so close together and packed so tightly that there is hardly room for a fly to have breathing space. More often than not, he suspends a number of larger articles from the ceiling.

It is useless to tell the English plumber that he confuses the spectator's mind by displaying a little of everything. He will probably argue that he has dressed his windows the same way for fifty years, yet his trade has not dropped off.

The editor of a prominent English trade paper told me in confidence that he dare not publish articles on window trims and other merchandising subjects, because if he did his readers would resent being taught their business, since they know it all—according to their own estimation! This explains why British trade papers, for the most part, are so uninteresting. The plumber looks upon them as news organs—not as business-increasing mediums.

Carried Down From Olden Times.

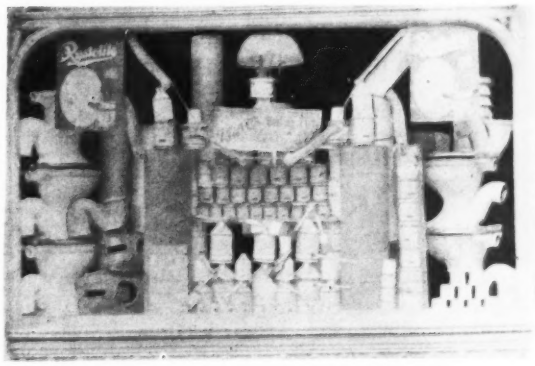
But the seed of the whole trouble was sown in olden times, when the wealth or social standing of a man was judged by the number of cattle and acres of land that he owned. This has been carried down from generation to generation, and although the war has chipped corners off of the English class distinction, the root still remains—and nothing short of a revolution can possibly destroy it.

I was related the story of a London merchant, who, in pre-war days, filled his windows to overflowing. If there was not a sample of every article carried in stock, the trim was not considered effective. At one critical time, when this retailer's finances were at low ebb, the stock began to get low and the window displays reflected the situation accordingly.

The American plumber could easily cover up such a stock deficiency, if necessary, by making an effective display of one particular kind of goods at a time. In England, however, it seems to be considered highly improper to utilize the least amount of stock in the window, and the merchant in question was talked about quite openly in the neighborhood.

Well Balanced Windows That Fail to Attract.

I have been in London nearly two months, during which time I have traveled a great deal. I decided to wait this period in order to reserve judgment, so it is with great reluctance that I have to say that the model bathroom window display, such as every progressive American plumbing and heating contractor takes pains



Typical Display in English Plumbing Shop.

to arrange to the best of his ability, is the exception rather than the rule.

There are a few plumbers here who have certain set ideas on window trimming, and they seem to think that if their windows are well balanced they are perfect. Apparently the English plumber does not know the meaning of artistry or atmosphere. It must be remembered that even in the large English cities bathrooms are conspicuous by their absence. You will find them out in the newer suburbs, where the houses have only been up a few years. But in the cities, where the houses have been standing from fifty to a hundred years, the Saturday night tub in the kitchen is a standing institution, just as it is in many American rural communities. I smile to myself every time they mention the bathroom at the house where I am staying in the heart of London. At first I thought it was an honest-to-goodness American bathroom, and considered that I was in luck's way. It is located in a little back room on the second floor. In this room an enameled bathtub has been installed with running water. If you want hot water you must go down

Editor's Note:—In connection with the article submitted herewith by Mr. Merritt, who is now in London, it might be well to state that there are few shops in England that do plumbing or heating work exclusively. They are usually "plumbers and decorators". There seems to be plenty of opportunity for English plumbers to do some decorating, so far as window displays are concerned.

two flights and bring it up, a pail at a time, as fast as it is heated over the gas stove in the kitchen. It is quite a ceremony to take a bawth, believe me, but it is far preferable to standing over the little zinc bathtub in the kitchen. Even the toilet facilities in many of the old city buildings are outside. The English seem to prefer it that way. They think it is unsanitary to have them inside.

Bathroom Propaganda Badly Needed.

But if the house owner and tenant will go to the trouble, as in the present instance, of installing a bathtub and running water in a small bedroom, it would not take much more persuasion to add a toilet and wash basin. It needs educational propaganda to get a bathroom in every British home, and there is no one more fitted to carry it out than the plumber. And nothing would help so much as model bathrooms in show windows, which even in the case of the best English plumbing windows are only 50 per cent efficient.

H. E. Olby & Company, Lewisham—one of London's suburbs—have three shelves at the rear of their windows, the two top shelves of which were filled with a score or more toilet bowls. The third shelf was occupied with washbowls. Beneath the shelves from left to right were three fire grates and overmantels combined. Down in front toward the center was another toilet bowl, with two gas heaters at each side to keep it company. The window was floored with linoleum of a black and white checked design.

Henry Corner, Balham, London, placed a coal cooking range at the rear of his window. The center was given over to stacks of garbage pails, with several small stoves at each side. In front at the left side three toilet bowls were piled on top of each other, while three wash basins were arranged in the same manner. Another pile of toilets stood in the center, and leaning against the wall at the right hand side were three bathtubs.

H. C. Davis & Company, Camberwell, London, used zinc roofing to trim the rear of their window. Then came two bathtubs, one at each side. The articles to catch the eye in front were half a dozen toilet bowls stacked one on top of the other to the left, and which were balanced by another equally large stack at the opposite side. Room was found in the center for two wash bowls.

W. Goodwin, Hastings—a fashionable South Coast Resort—displayed racks of wall paper and pedestals at the back of his trim. Down the front center two bathtubs were laid on the floor lengthways, with two toilets at each side and a fancy tiled fireplace at the far end sides.

Adams & Jarratt, St. Leonards—another South Coast resort—got nearer to the model bathroom idea than any other plumbing window I have so far seen over here. They certainly had the right articles to work with, except that there were too many of each kind, but they did not make the fatal mistake of throwing in coal stoves, garbage pails and other equally inappropriate bathroom accessories. Leaning against the back partition were three bathtubs at each side—all of them standing upright. The seventh and center bathtub stood longways on the floor. Toilets and wash bowls were arranged in an orderly manner down in front, an equal number of each occupying each half of the window.

No Chance to See Windows After Store Hours.

Another bone I have to pick with the English plumber is that when his store is closed at eight, to conform with the early closing act in force here, he does not wish the public to know that he exists.

When he closses he pulls down the wooden shutter arrangement outside his windows and shuts out everything from view. Gas and electricity are still rationed, consequently he cannot be expected to light up his windows, but this does not excuse him for pulling down the shades. The English plumber is evidently so shortsighted that he does not figure on the passers-by who might stop and look in his windows after he is closed, and then decide to come back tomorrow for some article that has taken his fancy.

I watched the results of one progressive plumber who had the courage to expose his windows to view. While standing across the street for some minutes several people deliberately paused before the windows—all of which goes to prove that the window shopping habit is the same the world over.

NEWS OF THE WORLD.

Chief Newton, of U. S. Patent Office, has asked Congress to present to J. A. de Marval, commander from Argentina, a full set of copies of all American patents, comprising a collection of more than 1,300,000 patents. He states that Canada is the only foreign government to which such a collection of patents has been presented.

It is announced that increase in wages sought by Brotherhood of Railway Conductors, who have been in conference with President Wilson regarding increase of wages and cost of living, would total nearly $1,000,000,000 a year.

Statistics compiled by Metropolitan Life Insurance Co. of New York, show that the influenza epidemic cost insurance companies $240,000,000 and resulted in the death of 450,000 persons. These figures cover autumn and early winter of 1918.

According to dispatch from Berlin an American loan of $100,000,000 has been obtained by M. Nordegg, representing Deutsche Bank of Berlin. It is said that 10 per cent of the loan would be deposited in foreign bonds to the German bank's credit.

Dispatch from Paris states that the French Government will make arrangements for permanent representation of French universities in universities of America. This decision was taken jointly July 25th by Foreign Office and Ministry of Public Instruction, with collaboration of the Franco-American High Commission.

Secretary Daniels, in an address at Wilmington, N. C., July 31st, declared that United States is on the high road to becoming the dominant maritime nation in the world and that never again will American-made goods be carried to the ports of the world in foreign-owned bottoms.

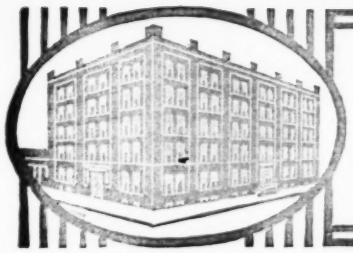
The Forest Service announces that many attractive building spots in National Forests of the West are open for lease by summer homes enthusiasts. Requests for information should be made to nearest office of Forest Service, or can be sent to headquarters in Washington.

The Highways Transport Committee of Douglas County, Neb., enjoys the distinction of being the first organization in country to compile and have adopted by a State Public Utility Commission a motor express route tariff sheet.

Republican members of the House Ways and Means Committee decided, July 31, by a divided vote to recommend passage of a bill providing for licensing board to control dye imports, as well as to levy a high tariff on all foreign dyestuffs permitted to come into United States.

It is reported that blinded Australians are provided by their government with houses at weekly rent of one shilling (24 cents).

Watch for the Farm Number of "Domestic Engineering."



Among the Wholesalers and Manufacturers

THE DEATH OF J. N. RAYMOND.

James Nelson Raymond, founder of the Raymond Lead Co., of Chicago, died at his home in this city on Thursday, July 31st, in his 72nd year. Mr. Raymond was born in New York City in 1847, but came to Chicago as a young man and established the business of the Raymond Lead Co., which proved so successful that it became one of the largest concerns of its kind in the country. He retired from active business several years ago.

THE THOMAS MADDOCKS SONS CO.'S OUTING

The Thomas Maddock's Sons Co., of Trenton, N. J., has just announced that its annual outing this year will be held at Springdale Park, near Yardville, N. J., on Saturday, August 17th.

SCIENTIFIC HEATER COMPANY CONSOLIDATES WITH ECONOMY STOVE CO.

The Scientific Heater Co., Cleveland, O., has effected a consolidation with The Economy Stove Co., also of Cleveland, and has moved to larger quarters at 2100 to 2124 Superior Viaduct. The company will now manufacture a line of gas and combination stoves and ranges, as well as clothes dryers, warm air furnaces, garage heaters, etc.

AMERICAN SOCIETY OF SANITARY ENGINEERING ANNUAL COVENTION IN SEPTEMBER.

Acting President Charles A. Rainger, of Cleveland, O., has sent to members of the society the following letter pursuant to the annual convention:

"The date for the next annual convention of the American Society of Sanitary Engineering, which has been set for September 15th, 16th and 17th, at the Hotel Winton, Cleveland, O., is fast approaching, and it is highly important that all our membership be present and help in the disposal of the many matters of vital interest that will be up for discussion at the time.

"It should be a matter of pride with us that many of our members were able to give the Government their services and knowledge during the late unpleasantness, and I have no doubt but that the few mistakes made by those outside of our membership who forced themselves on the administration, will be speedily rectified.

"The need of a national code on sanitary installation made itself very apparent during the war period, and we should bend every effort to establish such a code. This and other matters will be taken up at the coming convention, and you are earnestly requested to be present. The contribution of papers and other matters to be read at the convention by our members is solicited, with the request that these subjects be in the hands of the writer not later than August 24th.

"Arrangements have been made to provide for your comfort and entertainment while in Cleveland, and very reasonable hotel rates have been secured."

"X" LABORATORIES MOVE OVERNIGHT BY TRUCK FROM BOSTON TO NEW YORK.

The general offices of the "X" Laboratories were moved overnight from Boston to New York on July 28th. This novel stunt was accomplished to prevent an interruption in business, and offices are now being maintained on the seventh floor at 25 West 45th Street, New York, which will house the executive and sales departments. Early in the afternon of the 28th a fleet of trucks lined up in Washington Street, Boston, and were speedily loaded with furniture and office equipment. The personnel of the company, numbering 40 people, followed by train, and at 9 o'clock the next morning business was resumed in the new quarters. The factory in Boston is being retained and an additional plant will be equipped in or near New York City. The company states that it will soon announce a new product that is to be added to its line.

NEW CONSTRUCTION WORK.

The following are among the most important recently awarded contracts as reported in this week's issue of "The American Contractor":

$800,000 The Chastleton Apartment House, Washington, D. C., District Apartment Corporation.

$750,000 Packing Plant, Baltimore, Md., Wm. Schluderberg & Sons.

$600,000 Light Mfg. & Store Bldg., Cleveland, O., J. H. Rook.

$500,000 Store building, St. Louis., Mo., Ely & Walker.

$400,000 Storage building, Chicago, Griswald & Walker, Inc.

$225,000 Factory, Milwaukee, Wis., Milwaukee Paper Box Co.

$200,000 Factory, Chicago, The All-American Truck Co.

$200,000 Apartments and garage, Philadelphia, Pa., Board of Education.

$160,000 High school, Des Moines, Ia., Board of Education.

$150,000 Factory and warehouse, Cleveland, O., Vichek Tool Co.

$125,000 Factory, Pittsburgh, Pa., Wolverine Supply & Manufacturing Co.

$125,000 Printing plant, Pittsburgh, Pa., The "Johnstown Tribune."

$120,000 Mill, Providence, R. I., Manhasset Mfg. Co.

$100,000 Tuberculosis hospital, Indianapolis, Ind., Marion County.

$100,000 Sash Shop No. 6, Detroit, Mich., Detroit Steel Products Co.

$100,000 Manufacturing plant and salesroom, St. Louis, Mo., Ahrens & Ott Mfg. Co.

$100,000 Factory, Coshocton, O., The American Art Works.

$100,000 Warehouse, Omaha, Nebr., Jordon Loweless Co.

$100,000 Dormitory, Lake Geneva, Wis., Northwestern Military Academy.

FEDERATION OF BRITISH INDUSTRIES GOES AFTER WORLD'S MARKETS IN AN EARNEST AND SYSTEMATIC MANNER.

The Federation of British Industries, which is composed of over 900 of Britain's biggest manufacturers and manufacturing associations, has formulated plans for an overseas organization which contemplates the appointment in every market of the world of a commissioner, assisted, where advisable, by expert advisers and sub-commissioners. In this connection, the American Chamber of Commerce in London advises that the Federation has issued a map of the world which has been divided into 21 areas. Several of the commissioners for these areas have already been appointed.

Accompanying the map is a valuable analysis of the imports of the various commercial areas in 1913. The figures give the total imports and the amount of imports from the United Kingdom, thus showing clearly where British trade needs stimulating. It is the purpose of the Federation to explore all the possibilities of these markets and to further British trade in all possible ways.

The Overseas Trade Department of the Federation is a separate organization, which is divided into eight geographical sections organized as intelligence centers for the various territories. The purpose of this department is to provide a service run by manufacturers for manufacturers, capable of giving assistance and information of every kind promptly and efficiently to every manufacturer who desires to export his goods or import his raw materials.

The American Chamber of Commerce in London says that the Federation of British Industries is a very high class, powerful organization, and can be counted on as very likely to accomplish the objects it goes after.

WESTERN TRADE GOLF ASSOCIATION CHALLENGES EASTERN TRADE GOLF ASSOCIATION

At a meeting of the board of directors of the Western Trade Golf Association held in the Stratford Hotel, Chicago, on Wednesday, August 5th, a challenge was telegraphed to the Eastern Trade Golf Association for a match, on the following day, when both associations were scheduled to hold regular tournaments, the former association meeting at the Ridgemoor Country Club while the Eastern body played at the Belleclaire course at Bayside, L. I. A reply was received from Frank K. Chew, stating that the challenge would be presented to the members of the association and that acceptance was probable. Results will be published in next week's issue of "Domestic Engineering."

The directors of the Western association also met to decide on how various trophies, put up by officers and trade papers, should be played for. The first agreed on was the "Domestic Engineering" prize, which will be awarded to the member having the best low net qualifying score, not less than four games. The trophy put up by Handicapper J. P. Dugger will be given to the 30 handicap member, having the best low net score, afternoon play, for not less than four rounds, while the runner-up will win the prize offered by Captain Paul Blatchford. "The Metal Worker" offering will be won by the man having the score closest to 80 in Association Cup play, at least four scores being necessary to qualify. "The Plumbers' Trade Journal" trophy will be played for on a blind bogey, scores between 70 and 100, the same number of games essential.

The attendance consisted of J. P. Dugger, H. E. Keeler, R. M. Stackhouse, Peter M. Munn, Paul Blatchford, E. W. Sanborn, C. S. Pitkin, William Byrd and C. H. Bishop.

THE JULY MEETING OF NEW ENGLAND METAL PRODUCTS ASSOCIATION.

Members of the New England Metal Products Golf Association spent a most enjoyable day at Crow Point, Hingham, Mass., July 26th. The trip was made by automobile, all of the members getting an early start at the game immediately following their arrival. L. W. Smith was low man in the morning's play, going round the course in 70. Low man in the afternoon was G. A. Murphy, who did not play until after dinner. The greater part of the members stayed at the club house for supper at the invitation of the club secretary, and then enjoyed the ride home in the early evening.

The scores of the games follow:

	Morning.	Afternoon.
E. O. Chase	101-14-87	102-14-89
G. H. Collett	79-4-75	80-4-76
H. L. Doten	87-12-75	89-12-77
W. J. Eddy	104-18-86	No card
R. M. Greenlaw	107-16-91	98-16-82
W. A. Griffith	94-18-76	97-18-79
J. L. Kenyon	83-3-80	87-3-84
G. A. Murphy	not present to play	78-3-75
H. D. Nickerson	92-14-78	94-14-80
S. R. Reed	91-14-77	No card
L. W. Smith	86-16-70	95-16-79
W. H. Thayer	85-4-81	87-4-83
R. D. A. Thompson	No card	No card
G. F. Uhler	104-24-80	No card
D. W. Wade	83-12-71	No card
Mr. Maddock	No card	No card
Mr. Rooks	No card	No card
Mr. Howe	No card	No card
Mr. Skeetop	No card	No card

The next games will be played on Friday, August 15th, at the Brae-Burn Golf Club, Newton, the organization having been invited there for the day.

DELAWARE VALLEY TRADE GOLF ASSOCIATION HOLDS THIRD MEETING.

The third tournament of the Delaware Valley Trade Golf Association was held under ideal conditions on Wednesday, July 30, at the Whitemarsh Country Club, with twenty-six members present and E. Walsh, Tacoma, Wash., a guest for the day. Heavy rains had slowed up the course to some extent, but an excellent day's golf was enjoyed. Under the generalship of the tournament committee, consisting of T. Munroe Dobbins, chairman, W. C. Speakman, R. M. Stamback, George Bridgman and James McArdle, arrangements were conducted faultlessly throughout the meeting. At noon a fine buffet luncheon was served. James McArdle proved himself an ideal host, and, following the play, two new members, Messrs. Tomlinson and Graff, were introduced, at which time prizes were also awarded.

The first prize in the morning event was won by the host Mr. McArdle, while E. H. Giles took second honors. Afternoon play resulted in R. Turner and H. J. Kleinman winning first prize, and James Dallet and George Bell, second prize. The Duffer's Cup, donated by M. D. Robinson for the highest gross score, was won by Philip Faherty, who had 144 for the round. The afternoon event was closely contested so far as second prize was concerned, the winners defeating W. Ellis and G. E. Barker in the play-off. The prizes were in the form of "letters of credit" for merchandise at a well-known store.

Scores for the morning round and best-ball play in the afternoon were as follows:

Medal Play.

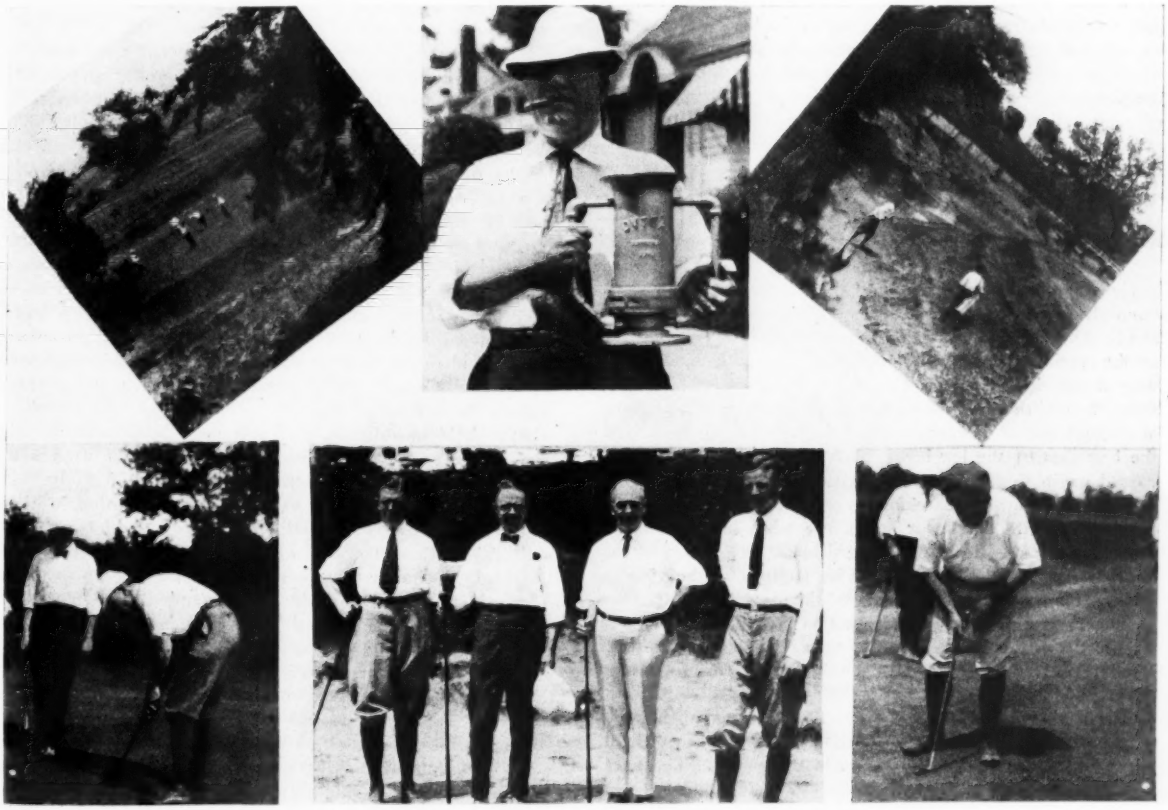
Morning—	Gross.	Hdcp.	Net.
Tinker, W. C	115	27	88
Eckfelt, F	125	30	95
Bridgman, G	123	20	103
Brecht, W. A	124	30	94

Barker, G. E	130	35	95
Ellis, W	124	35	89
Powers, T. H. S	121	17	104
Giles, E. H	106	20	86
Maddock, H	115	22	93
Faherty, P	122	35	87
Allen, F. C	128	35	93
Dallet, Jos	106	15	91
Titus, W. G	103	12	91
Bell, Geo	94	9	85
McArdle, Jas.	112	30	82

Best Ball. Medal Play.

Afternoon—

Bridgman, G., Powers, T	108	17	91
Dobbins, T. M., Stambach, M. P	96	16	80
Ellis, W., Barker, G. E	111	35	76
Dallet, Jas., Bell, Geo	85	9	76
McArdle, Jas., Robinson, M. D	108	25	83



Delaware Valley Trade Golf Association's Tournament at the Whitemarsh Country Club. Top: Looking down at the 14th Green: M. D. Robinson and the Duffer's Cup; Captain Parry in a Water Hole. Bottom: E. H. Giles, putting, and T. Powers; T. Monroe Dobbins, Thomas Powers, George Bridgman and M. P. Stambach; James McArdle, the Host, who won the Morning Contest, Sinking a 10-footer.

Titus, W. G., Parry, J. C	93	10	83
Tinker, W. E., Eckfelt, F	114	27	87
Giles, E. H., Brecht, W. A	115	20	95
Faherty, P., Allen, F. C	127	35	92
Maddock, H., Walsh, E., from Tacoma, Wash	117	22	95
Tomlinson, Groff	111	18	93
Kleinman, H. J., Turner, R	90	18	72

The most successful merchants, the country over, are those who meet competition by giving their customers better, instead of cheaper goods. This should be a settled principle in buying stock. The moment the storekeeper becomes possessed of the idea that cheapness in price is the main consideration in merchandising he will start upon the accumulation of a stock which will sooner or later sacrifice his standing with the most desirable trade in his community.

USE OF THE TRADE ACCEPTANCE IN BRITISH DOMESTIC BUSINESS.

At a time when so much is being done in the United States to stimulate the use of the trade acceptance in domestic business, it may be of interest to know what British practice is in this regard.

The domestic trade acceptance was very generally used 30 or 35 years ago, but its use has since been practically discontinued. Of course the bank acceptance is used universally in foreign business, but in domestic business the banks make advances and permit overdrafts as the accredited method of financing trade.

The five large joint-stock banks which have branches throughout the United Kingdom and control about 70 per cent of the banking business of the country use the overdraft very extensively. The overdraft is used particularly in the case of the very large firms. It does not follow, of course, that advances made in this form are unsecured. The custom is to keep with the bank as a reserve against which to secure advances a certain amount of securities, this being true whether the advance is to be an overdraft or a loan. To obtain an overdraft the firm calls on or writes the bank and advises it that it wishes to overdraw its account for a prescribed amount, and the bank then honors checks against it for approximately that amount—the sum is never rigid, and the extent of the overdraft is left to the requirements of the firm.

Some banks follow the practice of having borrowers on

overdraft sign their account as an acknowledgment, and this has the legal status of a note. It is always necessary for the firm requesting permission to overdraw to state when it expects to be able to make payment, but large firms have heavy overdrafts almost continuously. The manager of one of the big joint stock banks said it was hard to estimate what percentage of his bank's advances are in the form of overdrafts, but that he thought perhaps one-fifth in the number of loans, but more than this in the volume of credit extended, because of the fact that the overdraft is used most by the big firms.

Advances on Notes.

Aside from the use of the overdraft, the manner of financing domestic trade is similar to that which prevails in the United States. Advances are made for 60 to 90 days on the note of the borrower, usually with, but sometimes without, collateral security; the discretion of the bank in the matter of making advances being the main source of safety where securities are not taken. However, it is the buyer of the goods that seeks the accommodation at the bank rather than the seller. The abuses of the "open-book account" system, with the wholesaler or manufacturer financing his customers, do not exist. The bank finances the transaction directly when financing is necessary. The banks exercise care to see that the loan is for a definite turnover, and will not let a client put bank capital into his business.

Bank Inspections.

There is no governmental inspection of the banks, but they themselves have an inspection system which is extremely rigid. The large joint stock banks have their inspectors call at the various branches about every 18 months and make very thorough inspections, covering every phase of the business. In addition to this, unannounced inspections take place at more frequent intervals. No loans are placed by any of the branches of the big banks until the application has been passed on in the central office in London. There is a most efficient and thorough checking up on everything that is done, with the result that poor loans are very infrequent and losses very small, from both unpaid loans and dishonesty on the part of branch managers. This method of the responsibility remaining with the banks themselves, rather than resting upon a governmental inspection system, as in the case of the national and state banks, seems to show at least as good results, reports Trade Commissioner Henry F. Grady from London.

The banker makes no real distinction in his mind between advances made on the note of his client and the overdraft, since the latter is as much secured as the note. The question of overdraft is not determined by rigid regulations, as in the United States, where the law does not permit it, and the banks will honor checks whenever they have been advised that securities are being forwarded. They do not protest the checks of their clients, but will, where they know the firm, recognize an overdraft, on the assumption that the matter is done in good faith, and then take the matter up with the client. This gives a broader discretion to the bank, and is, it is understood, never abused. The principal source of loss has not been by the repudiation of clients' obligations, but by the fraudulent hypothecation of clients' securities by solicitors. The bank is held responsible for such losses.

The overdraft has been more popular of late, because there is no stamp tax required, as in the case of notes. The head of one of the largest British banks said that he believed that we in America would not take up the use of trade acceptance very extensively, because it tends on the whole to reduce bank deposits and the use of the check, which is the most economical method of utilizing the credit and gold resources of a country. He admitted that perhaps it might be advantageous for us to develop the use of the trade acceptance in domestic business for a time.

PUMPS NEEDED IN EGYPT.

Agriculture in Egypt is almost entirely the result of irrigation. The water is lifted to the fields from the Nile River and from a widespread net of canals by means of pumps, which are mostly of two classes. The "shadoof" is a primitive form of our ancient well sweeps, and consists of a bucket on the end of a pole, which is raised and lowered by a man. The "sakkieh" consists of a string of buckets passing along an axle, which is turned by animals, usually cattle or donkeys. Both of these methods are primitive, exhausting, and consequently exceedingly expensive. The more common "shadoof" demands monotonous and unremitting toil.

A number of persons who have studied conditions in Egypt carefully believe that there is a good opportunity there for pumps of various kinds, provided they are made cheap enough to be within the means of the people. The average lift varies from 15 to 30 feet, according to the height of the water in the river and canals. This lift is sometimes accomplished by a chain of primitive pumps, each of which discharges in a basin from which the water is raised by the succeeding pump. In some cases it would be possible to use the ordinary pitcher pump, with a pipe attachment. In other cases, the lift is so great as to require some form of force pump operated by hand. It seems probable, also, that some form of pump with an inclosed chain of buckets could be devised to be operated by cattle. One of the greatest difficulties in using these pumps is the large amount of mud and silt which is always held in solution in the water. It is unlikely that any of the present varieties of pumps could be used without modification, but the matter is worthy of study.

The lower classes are extremely conservative in their habits, and have very little money for purchasing agricultural implements, but with cheap pumps of this kind it seems probable that, with skillful marketing methods, the sale might be considerably extended.

There have been from time to time in operation on the larger estates, centrifugal pumps using either coal, kerosene, or fuel oil for motive power. These have been very successful, but the cost has prevented their wide use. There is apparently a field for cheap pumps to be run by oil or gasoline motors, as well as by hand. Any persons who contemplate making pumps for the Egyptian market would have to bear in mind that they must be made of the strongest material and simplest construction, in order to stand misuse and neglect. The idea of producing these pumps is the more worthy of study because they could, in all probability, be used successfully in other parts of the East, such as Asia Minor, Syria, Mesopotamia, India, and China, says Commerce Reports.

It seems possible that there may be a market for galvanized roofing and for the various prepared roofings which have burlap or felt as a base, but those made with asphaltum have not, as a rule, proved satisfactory under the heat of the intense Egyptian sun.

There has been some discussion whether there might not be a market among the wealthier people for some of the typical American conveniences, such as bathtubs, wash bowls, portable electric and acetylene lighting plants, and similar articles. As Egypt is entirely destitute of sewage systems and the people are wedded to their ancient customs, such conveniences would not be required, except by the increasing class which has been given a European education.

ALL EXPORT RECORDS BROKEN.

A remarkable jump in exports during June brought the total for the fiscal year 1919 to more than $7,000,000,000, a new record, says the Department of Commerce.

The June exports are put at $918,000,000, which exceeds the previous high record, established in April of this year, by more than $200,000,000. The exports for June of last year were valued at $484,000,000. Total exports for the fiscal year stand at $7,225,000,000, as compared with $5,920,000,000 for the fiscal year 1918. This is more than three times the exports for 1914, the last normal year. Exports since the armistice was signed in November are estimated at about $5,000,000,000. The excess of exports over imports for the fiscal year 1919 was $4,129,000,000, against $3,000,000,000 the previous year, and less than $500,000 in 1914.

Imports for June were valued at $293,000,000, a falling off from the total of $329,000,000 recorded for May, but an increase over the $260,000,000 for June of the previous year. Total imports for the fiscal year just closed are placed at $3,096,000,000, as against $2,946,000,00 for the year 1918.

The removal of war-time restrictions caused a decided increase in the exports of gold from less than $2,000,000 each in April and May to $83,000,000 in June. Gold exports for the fiscal year amount to $117,000,000, against $191,000,000 for 1918. Exports of silver fell off from $29,000,000 in May to $13,000,000 in June, but increased from $139,000,000 for the fiscal year 1918 to $301,000,000 for 1919.

MANUFACTURERS OF PLUMBING EQUIPMENT EXHIBIT AT HOTEL MEN'S SHOW.

Several manufacturers of plumbing equipment exhibited at the Hotel Men's Show, held this week at the Coliseum, Chicago. Crane Company, Chicago, displayed a fine model equipment suitable for a 5-foot 6-inch by 6-foot 6-inch bathroom, which included a built-in Bathtub and shower, pedestal lavatory and low-down tank closet combination. Adjoining this booth was that of Kohler Co., Kohler, Wis., which also included a built-in tub and other modern plumbing equipment. The Hoffmann & Billings Manufacturing Co., Milwaukee, Wis., exhibited its line of showers and "Niedecken" mixers, which included apparatus suitable for installation in hotels, homes, apartments, etc. The Lead Lined Iron Pipe Co., Wakefield, Mass., showed its products, while Kroeschell Bros. Co., of Chicago, displayed refrigerating equipment.

Federal Reserve Bulletin says: "Already possessed of greatest single stock of gold in history, United States could lay claim to most of remaining free gold of world in payment of its favorable merchandise balance. Balance approximates $9,000,000,000 in last three years, and bids fair to continue at same rate this year, affording problem to arrange for payments without bankrupting debtor nations and still further enhancing cost of living here through importation of more metal."

Estimates of the Treasury Department show that money in circulation on July 1 totaled $5,841,026,528, compared with $5,384,797,909 on July 1, 1918, and $5,834,268,212 on June 1, 1919. Based on an estimated population of the country of 107,600,000, the circulation of money per capita on July 1 was $54.28. The general stock of money in the United States at the beginning of this month totaled $7,588,473,771, against $6,742,225,784 in July of last year. Money held in the Treasury as assets, totaled $578,848,043 on July 1, 1919 and $356,124,750 on July 1, 1918.

Personal Mention

Cole Stickle, president of the Open Coil Heater & Purifier Co., Indianapolis, Ind., is enjoying the beauties of the scenery in the northern part of New York state, from behind the wheel of his Twin Six. Mr. Stickle expects to spend the next three weeks touring Canada in company with Mrs. Stickle and their son.

Clifford C. Emerson has been appointed treasurer and manager of the plumbing supply house of C. M. & H. T. Plummer in Portland, Me., to succeed Fred K. Rounds, who resigned some time ago and entered the supply business on his own account.

H. F. Meyer.

H. F. Meyer, for twenty years in the plumbing supply trade, has joined the selling forces of the Detroit Valve & Fittings and Detroit Brass Works, Detroit, Mich., and will cover the Central and Northwestern States.

J. E. Blakemore, formerly connected with the National Plumbing Supply Co. and the E. A. Kingsbury Co., both of Chicago, has joined the sales force of the Raymond Lead Works, Chicago, and will cover the south part of the city in the latter concern's interest.

H. Romeyn Smith announces that he has opened a well stocked warehouse at 66 Cliff Street, New York, for the exclusive convenience of jobbers of plumbing and mill supplies. He handles the products of the Detroit Valve & Fittings and Detroit Brass Works, of Detroit, Mich.

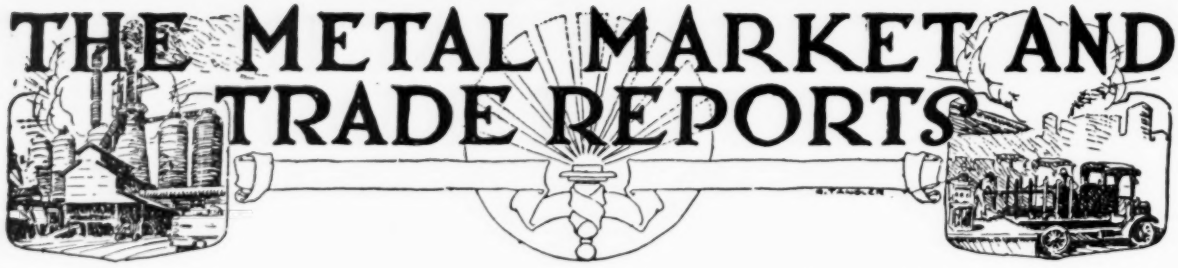
Julian P. Smith, formerly with the Sanitary Mfg. & Supply Co., of Kenova, W. Va., has accepted a position on the sales force of the Wooster Sanitary Co., of Clarksburg, W. Va., to cover East and Middle West territory.

Geo. G. Dyer, secretary of the Sanitary Potteries Association, has just returned to Trenton, N. J., from a two weeks' trip in the West.

W. G. Hauser and A. N. Pasman, both of the American Pin Co., Waterbury, Conn.—From "Domestic Engineering" Photo, taken at the recent Atlantic City Convention of the National Association of Master Plumbers.

Walter J. Bozeman, who for several years represented the Wolverine Brass Works in the territory about Georgia, the Carolinas and Florida, has resigned to organize the Bozeman Mfg. Co., of Baltimore, Md.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

There is a tendency among the independents to mark up prices of steel, and last week plain and barb wire were put up, by three important producers, $2.00 a ton, while nails were advanced $5.00 a ton or 25c a keg. Other producers, among them the United States Steel Corporation, are selling in such restricted manner that the advances have some force marketwise. Black sheets were also put up $2.00 a ton and galvanized $4.00 a ton by independent sheet interests, and it is expected that others will follow. Buying of steel products is keeping up the pace that has been in evidence for the past three weeks. There is a heavy demand for sheets, tin plates, wire products, and pipe; moderately heavy demand for bars, and indifferent demand for structural shapes, and a very poor demand for rails, and railroad material generally.

Steel mill operations may be estimated as running at about 75 per cent of capacity, which is an increase of 5 per cent over July. The midsummer months are generally dull in the steel market, and more improvement is to be expected in September. The improvement at the mills can be traced to two distinct elements, producers assert. On the one hand, there is greater demand for ship plates and shapes, because of increased ship building, and besides this, there are orders pending in the trade from foreign interests amounting to a total of 25,000 tons, part of which is from Japan.

The New York Consolidated Railroad Co., which operates the rapid transit lines of the Brooklyn Rapid Transit System, contracted for the construction of 100 new steel cars for operation on the subway and elevated roads. The total cost will be $1,628,000.

The pig iron markets are steady, and a few furnaces have advanced prices, while on the other hand, idle furnaces have cut prices slightly in order to obtain a backlog of business upon which to resume production. Scrap iron has stiffened somewhat. High-cost steel makers and those steel interests whose industry is not self-contained, are reported to be in the fore as regards orders placed for pig iron at the present time. The situation throughout the iron industry is said to be increasingly strong, and not the least favorable is the Chicago report to the effect that 1920 iron has been sold at an advance of $2.00 a ton over prevailing quotations for last half delivery in the current year. On the whole, the situation in both the steel and iron industries is very satisfactory, and producers are looking forward to a good business in the fall. Pig iron prices are quoted as follows:

No. 2X Philadelphia	$29.60
No. 2 Southern, Cincinnati	28.35
No. 2 furnace, Chicago	26.75
Basic Valley, furnace	25.75
Bessemer, Pittsburgh	29.35

Copper.

The copper market is quiet, although the tone is firm. Nothing of interest developed last week. Sales dwindled in volume to a low point, and no improvement of note can be looked for at present. The fact that practically all of the larger selling interests have failed to quote for last quarter delivery is regarded as having dulled to a great extent the activity, which otherwise might have been shown by consumers who at present are booked up quite far ahead. Spot and August are quoted at 23½ cents per pound, and September at 24 cents.

Tin.

The situation in the tin market remains unchanged, the market continuing dull and quiet, with practically no variation in the quotations heard on the Metal Exchange. The prices are for spot Straits, 70½ cents per pound, and 66 cents for electrolytic, per pound.

Lead.

The lead market continued dull and very quiet all of last week. The American Smelting & Refining Co. continues to quote 6 cents per pound for New York delivery, and 5.75 cents per pound for East St. Louis shipment.

Spelter.

The spelter market maintains its dull tone, and while the price scale is unchanged the speculative activity was still apparent. The situation is expected to improve by the middle of the present month. Prime Western is quoted at 7.80 cents for spot, New York delivery, and East St. Louis 7.25 cents.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 50-ton lots)	33 cents per lb.
Antimony (Chinese and Japanese)	9¼ cents per lb.
Solder, No. 1	38 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying.	Selling.
Copper, heavy	19¼ to 19¾ cents	20 cents
Copper, light	16¾ to 17 cents	18 cents
Brass, heavy	12½ to 13 cents	14 cents
Brass, light	9¾ to 10 cents	11 cents
Brass, turnings	13½ to 14 cents	15 cents
Tea lead	4½ to 4⅝ cents	6 cents
Lead, heavy	5½ to 5⅝ cents	7 cents
Zinc	5¼ to 5½ cents	6 cents
Solder joints	12 cents	13 cents
Mixed babbit	6½ cents	7 cents
Cocks and faucets	16 to 16½ cents	17 cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	11¼ to 11¾ cents	12 cents
Brass, light	10¾ to 11 cents	12 cents
Brass, medium	11¾ cents	12 cents
Red brass	18¾ to 19 cents	20 cents
Copper, heavy	19¼ to 19¾ cents	20 cents
Copper, light	18 cents	19 cents
Lead, heavy	5 to 5¼ cents	6 cents
Tea lead	3¼ to 3½ cents	4 cents
Zinc	5½ to 5¾ cents	6 cents
Solder joints	10½ to 11 cents	12 cents
Cast aluminum	24½ to 25 cents	26 cents

SCARCITY OF MATERIALS AND ADVANCING PRICES FEATURE PLUMBING AND HEATING MATERIAL MARKET

Chicago, Aug. 6.—The upward trend of the market in plumbing and heating equipment has not diminished, and the latest announcements of advances are in boilers and radiation, which have been increased 12½ and 7½ per cent, respectively. Fittings have also advanced in the neighborhood of 15 per cent. The situation has developed to such an extent that manufacturers in the plumbing and heating field have sent out advices that goods will be billed at prices prevailing at the time of shipment. The scarcity of all kinds of materials is another outstanding feature of the market just now. Plants are operating to capacity, and in some cases day and night shifts are working to keep up with orders. It is not unusual to learn that orders cannot be taken for shipments until October or November, and those, who hesitated to place their business at a time, when equipment was available, are finding the present conditions anything but satisfactory in serving their customers.

The attitude of the distributor may be gleaned from the following letter, which was sent out recently by a prominent Middle Western jobber:

"Business in general has been improving for the past several weeks—orders are increasing, particularly in the smaller towns, but we find the trade as a class—order to cover present wants only, which may be all right for quick turn over, in fact this has been the policy for several years past, which has been brought about on account of the number of unusual conditions.

"Nearly all orders are being delayed now, because manufacturers have no surplus on hand.

"In the past four weeks there have been advances in prices, as follows: Lead pipe, traps and solder; soil pipe and fittings, two advances; plumbing and steam brass goods; closet combinations; earthenware; wood tanks and seats; enameled ware.

"It is our opinion advances just at this time are a mistake, but the manufacturers inform us their labor and incidental costs for productions are still increasing steadily, so what are we going to do about it?

"In the meantime there is no surplus stock on hand, and this condition will probably continue for some time. Therefore it is our suggestion to be careful how you figure your contracts, and also if you are going to get your material without a great loss of time and incidental expense which would wipe out your profit and possibly leave you a loss on certain contracts.

"It appears to us the next months will develop a condition, which will mean a shortage of material and next to impossible to get some goods in a reasonable time."

Conditions in Chicago are unchanged at the time of writing, owing to the fact that the building lockout is still in effect. The carpenters' demands have not been allowed, but plumbers' and gas fitters' wages have been advanced a dollar a day, making their scale $8 per day. Negotiations with the drainlayers, who have asked for $6.50 per day, are under way. Efforts are being made to end the strike and lockout and, according to newspaper reports, attorneys for the carpenters are charging conspiracy on the part of building material dealers and contractors.

General business shows improvement. Commercial failures for July were the lowest for any month in the last 25 years, according to R. G. Dun & Co. They totaled 452 with liabilities of only $5,507,000. The steel mills are reported to be operating at 80 per cent of capacity, notwithstanding the fact that the railroads, which normally take 40 per cent of the output are buying only to meet actual necessities.

NEED OF FIXED WAGE SCALE FELT IN NEW YORK

New York City, Aug. 5.—That important economic factors are now operating to stimulate building construction in the East, and that a start has already been made, is found in the increasing movement of building materials.

The gain indicates that a construction market is available in New York, of about 50 per cent of normal in spite of labor strikes and transportation delays. Reports show a gain for July in the movement of basic materials from supply yards to actual building operations of more than 47 per cent over June, and about 11 per cent gain over the best month since July, 1917.

This volume of construction could easily be 60 to 75 per cent of normal, if a maximum wage scale agreement could be effected between employers and skilled labor.

Responsible building contractors are willing to figure freely on all prospective work offered them, and they will follow this policy until some guarantee of a definite wage level for a definite period is forthcoming. In the meantime, strong pressure is being brought to bear upon the entire eastern market to reach a basis of agreement on the wage situation.

The Pipe Market.

Quotations on less than car lots of full weight steel pipe are as follows:

	Butt Weld		Lap Weld	
	Blk.	Galv.	Blk.	Galv.
⅛ to ⅜ inch	46½	18½	.....	.....
½ inch	50½	34½	.....	.....
¾ to 3 inch	53½	38½	.....	.....
2 inch	.....	.....	46½	32½
2½ to 6 inch	.....	.....	49½	35½
7 to 12 inch	.....	.....	44½	29½

The quotations apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong steel pipe in less than car lots, quotations are as follows:

	Extra Strong				Double Extra Strong			
	Plain Ends		Plain Ends		Plain Ends		Plain Ends	
	Butt Weld		Lap Weld		Butt Weld		Lap Weld	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛, ¼ and ⅜ inch	37½	12½	.....	.....	.....	.....	.....	.....
½ inch	42½	17½	.....	.....	30½	.....	.....	.....
¾ to 1½ inch	46½	21½	.....	.....	33½	.....	.....	.....
2 to 2½ inch	47½	22½	.....	.....	35½	.....	.....	.....
3 inch	47½	22½	.....	.....	.....	.....	.....	.....
2 inch	.....	.....	39½	14½	.....	.....	28½	.....
2½ to 4 inch	.....	.....	42½	17½	.....	.....	30½	.....
4½ to 6 inch	.....	.....	41½	16½	.....	.....	29½	.....
7 to 8 inch	.....	.....	35½	10½	.....	.....	22½	.....
9 to 12 inch	.....	.....	30½	.....	.....	.....	.....	.....

With threads only, the basing discount is 1½ points lower. With threads and couplings the basing discount is three points lower. The quotations apply to less than ca lots.

Quotations on full weight genuine iron pipe, in less than car lots, are as follows:

	Butt Weld		Lap Weld	
	Blk.	Galv.	Blk.	Galv.
⅛ to ¼ inch	23½	+5½	.....	.....
⅜ inch	24½	+4½	.....	.....
½ inch	28½	8½	.....	.....
1¼ inch	33½	15½	.....	.....
¾ and 1 inch	33½	15½	.....	.....
1½ inch	33½	15½	.....	.....
2 inch	.....	.....	26½	10½
2½ to 6 inch	.....	.....	28½	13½
7 to 12 inch	.....	.....	23½	8½

These quotations are f. o. b. Pittsburgh, and apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong genuine

wrought iron pipe, with plain ends, and in less than car lots, the quotations are as follows:

	Extra Strong Butt Weld		Extra Strong Lap Weld		Double Extra Strong Butt Weld		Double Extra Strong Lap Weld	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛ to ⅜ inch	17½	+10½	.....	.....	.....	.....	.....	.....
½ inch	22½	+ 5½	.....	.....	.....	.....	.....	.....
¾ and 1 inch	28½	½	.....	.....	.....	.....	.....	.....
1¼ inch	28½	½	.....	.....	.....	.....	.....	.....
1½ inch	28½	½	.....	.....	.....	.....	.....	.....
2 inch	.....	.....	22½	+ 2½	.....	.....	.....	.....
2½ to 4 inch	.....	.....	24½	+ 1½	.....	.....	.....	.....
4½ to 6 inch	.....	.....	24½	+ 1½	.....	.....	.....	.....
7 to 8 inch	.....	.....	14½	+11½	.....	.....	.....	.....
9 to 12 inch	.....	.....	8½	+16½	.....	.....	.....	.....

These retail prices are f. o. b. Pittsburgh, and apply to all quantities except in car lots. With threads only, the basing discount is 1½ points lower. With threads and couplings, the basing discount is 3 points lower.

To ascertain the price in your city, deduct the proper less-than-carload freight rate from Pittsburgh to that city. Example: Base price on ½-inch black steel pipe is 50½ per cent, Pittsburgh, the less-than-carload rate to Patson is 17 cents, and the price, therefore, freight allowed to Patson 48$\frac{5}{10}$ per cent; on galvanized, 33$\frac{5}{10}$ per cent. All other sizes to be figured on a comparative basis.

The Pipe Market in New England and in Parts of New York State.

In New York State on all points on the Hudson River, and in all of New York State south and east of Albany, in all New England and for export, quotations are as follows:

Wrought Steel Pipe.

	Black	Galv.
⅛ to ⅜ inch	38	4
½ inch	43	26
¾ to 3 inch	47	31
2 inch lap	38	23
2½ to 6 inch	42	27
7 to 12 inch	33	16

Extra Heavy.

	Black	Galv.
⅛ to ⅜ inch	31	+ 2
½ inch	37	12
¾ to 1½ inch	42	18
2 to 3 inch	43	19
2 inch lap	34	10
2½ to 4 inch	37	14
4½ to 6 inch	31	12
7 and 8 inch	25	4
9 to 12 inch	18	+ 3

Double Extra Heavy.

	Black	Galv.
½ inch	16	....
¾ to 1½ inch	21	....
2 to 2½ inch	23	....
2 inch lap	14	....
2½ to 4 inch	16	....
4½ to 6 inch	15	....
7 to 8 inch	2	....
14 to 20 inch O. D	20	....

Genuine Wrought Iron Pipe.

	Black	Galv.
⅛ to ¼ inch	12	+25
⅜ inch	13	+24
½ inch	18	+ 4
¾ to 1½ inch	25	5
1¼ inch lap	net	+19
1½ inch	12	+ 6
2 inch	16	+ 2
2½ to 6 inch	18	1
7 to 12 inch	6	+12

Extra Heavy.

	Black	Galv.
⅛ to ⅜ inch	3	+30
½ inch	13	+17
¾ to 1½ inch	21	+11
1¼ inch lap	net	+34
1½ inch	10	+21
2 inch	13	+17
2½ to 4 inch	15	+13
4½ to 6 inch	6	+14
7 to 8 inch	+ 5	+26
9 to 12 inch	+12	+33

For pipe handled through shop or cut to length, add 10 per cent to the net price of pipe.

Cutting and threading 12 inch and smaller—net list prices.

Cutting and threading 14 inch and larger—25 per cent discount from list prices.

Cutting only, two-thirds of the threading price.

These prices include cartage to point of destination, if same is within cartage limits—for domestic purposes. If outside the cartage limits, they are f. o. b. shipping point, with actual freight allowed to destination, not exceeding 20c per 100 lbs. When shipped for export, the price includes cartage to point of shipment, if same is within reasonable cartage limits—with no freight allowance.

PLANS DESIGNED TO ELIMINATE INDUSTRIAL STRIFE.

The National Association of Corporation Schools, with headquarters in New York City, which is studying the problem of a more equitable distribution of created wealth through industrial pursuits and also attempting to eliminate present wastes due to lockouts, strikes and other forms of industrial strife, through scientific employment, training of the industrial workers and other personal problems, and in which some 133 of the larger industrial institutions of the United States have membership, advises that a recent inquiry among several hundred industrial corporations reveals that there are three plans that are being used, all designed to give employes more voice in management, especially as relates to working conditions, hours and wages. The results of the inquiry indicate that a considerable majority of the larger industrial institutions have either inaugurated some one of the three plans or are studying the various plans and gathering data on results so far obtained, with a view to determining which of the plans they will inaugurate. The plans are known as the "Works' Committee" plan, the "Industrial Council" plan and the "House and Senate" plan. The purpose of the three plans is practically the same, but the method of operation differs. So far as known, none of these plans involves direct representation on the part of the workers on the board of directors. However, it is anticipated, if it is found as a result of experiments, that employes assume the responsibility, which logically they must assume if they are to have a continuing voice in management, that ultimately employes will be permitted to name a minority representation upon the board. Such action probably will occur only in industrial institutions where a considerable number of employes are stockholders, and the representation which they secure upon the board of directors will be dependent upon the amount of shares of stock represented by the employes who have a right to vote for such representation.

In one of the largest industrial institutions, where the "industrial council" plan has been made effective, the immediate result was a request on the part of the employes' representatives in the industrial council for an increase in wages and shorter working hours. This was followed by an avalanche of requests from individual employes for increases in wages. When it was pointed out to the representatives of the employes by the members of the industrial council representing the stockholders and management, that such action would necessarily involve an increase in the cost of the product of the company, and that this increase would bring the selling

price of the company's product to figures considerably higher than the selling price of their competitors, the request for shorter hours and increased wages was temporarily, at least, withdrawn. In other words, the immediate results of giving a voice to employes through delegated representatives were wholly selfish and not based upon investigation as to conditions, and were made without any assumption of responsibility whatsoever.

In at least three large industrial institutions where some one of these plans has been introduced, strikes have followed within a period of one month. In other companies the plans have worked well, although the period of trial is of too short duration to admit of any conclusions as to what will be the final results and as to what definite attitude the representatives of employes may ultimately take. The assumption may be safely made, however, that employes of industrial corporations will continue to demand a voice in those problems of management which affect wages, working conditions and hours of labor. Whether or not the representatives of the workers in industrial councils will assume a fair portion of responsibility remains to be determined. So long as shorter hours and higher wages can be secured through strikes, it is probable that the new co-operative plans will make slow progress, but when the time arrives as it inevitably must arrive, that strikes are no longer successful, and when the public will demand to be heard in the settlement of wage disputes, it is believed that more constructive progress can be made in the working out of co-operative management, and that the workers will then assume a more definite responsibility for production. It is obvious that responsibility must be assumed by the workers if the industries of the United States are to be placed upon a more democratic or co-operative basis. Efforts to introduce better training systems and more scientific employment methods are meeting with no opposition and are progressing steadily. Also, efforts to encourage thrift (to include home owning), group insurance and sick and death benefit features are meeting with encouragement.

The survey also disclosed that plans to insure stock ownership by employes in the company by which they are employed are rapidly becoming installed, the number of companies now installing this feature being far in excess of the number that were working on similar plans prior to the reconstruction period. Stock ownership plans almost invariably include provision for service annuities or retirement pensions.

The belief expressed by Judge Gary, Chairman of the United States Steel Corporation, that efforts to unionize the employes of the various subsidiary companies of that corporation, would not succeed because the men realize they are better off under "open shop" conditions than they would be under the control of unions, is assumed by many other industrial executives. In fact, the present effort is not only to secure employe or co-operative effort in management, with proportionate responsibility, but also to provide conditions whereby the workers of the larger industrial institutions will receive a greater degree of advantage than would be possible under the unions' control and direction.

The crux of the situation seems to be acceptance of responsibility by the representatives of the workers for greater output commensurate with shorter hours and higher wages.

The town of Sheldon, Vt., plans to install new heating, ventilation and plumbing systems in the village schoolhouse. Contracts will be awarded soon.

MUST MAKE FOREIGN MARKETS LIKE OUR OWN DOORYARD DECLARES NEW HEAD OF COMMERCE BUREAU.

That the time has come when we must make foreign markets like our own dooryard, is the chief theme in a message sent to the members of the American Manufacturers' Export Association by Mr. Philip B. Kennedy, recently named by President Wilson to succeed Mr. B. S. Cutler, as Chief of the Bureau of Foreign and Domestic Commerce, of the Department of Commerce. In this message, Mr. Kennedy says:

"The successful development of the American trade abroad, at least in most lines, requires intensive treatment. The time has come when we must make the foreign markets like our own dooryard. This will be true more and more every year, I am confident. It is especially important that the Bureau of Foreign and Domestic Commerce which is an agency designed to inform American exporters of conditions abroad, should devote itself seriously to the most effective kind of personal contact with foreign markets. Foreign trade is only partly a matter of statistics, maps and reports of all kinds. It is at the basis a knowledge of human nature and the way in which that human nature responds to various conditions.

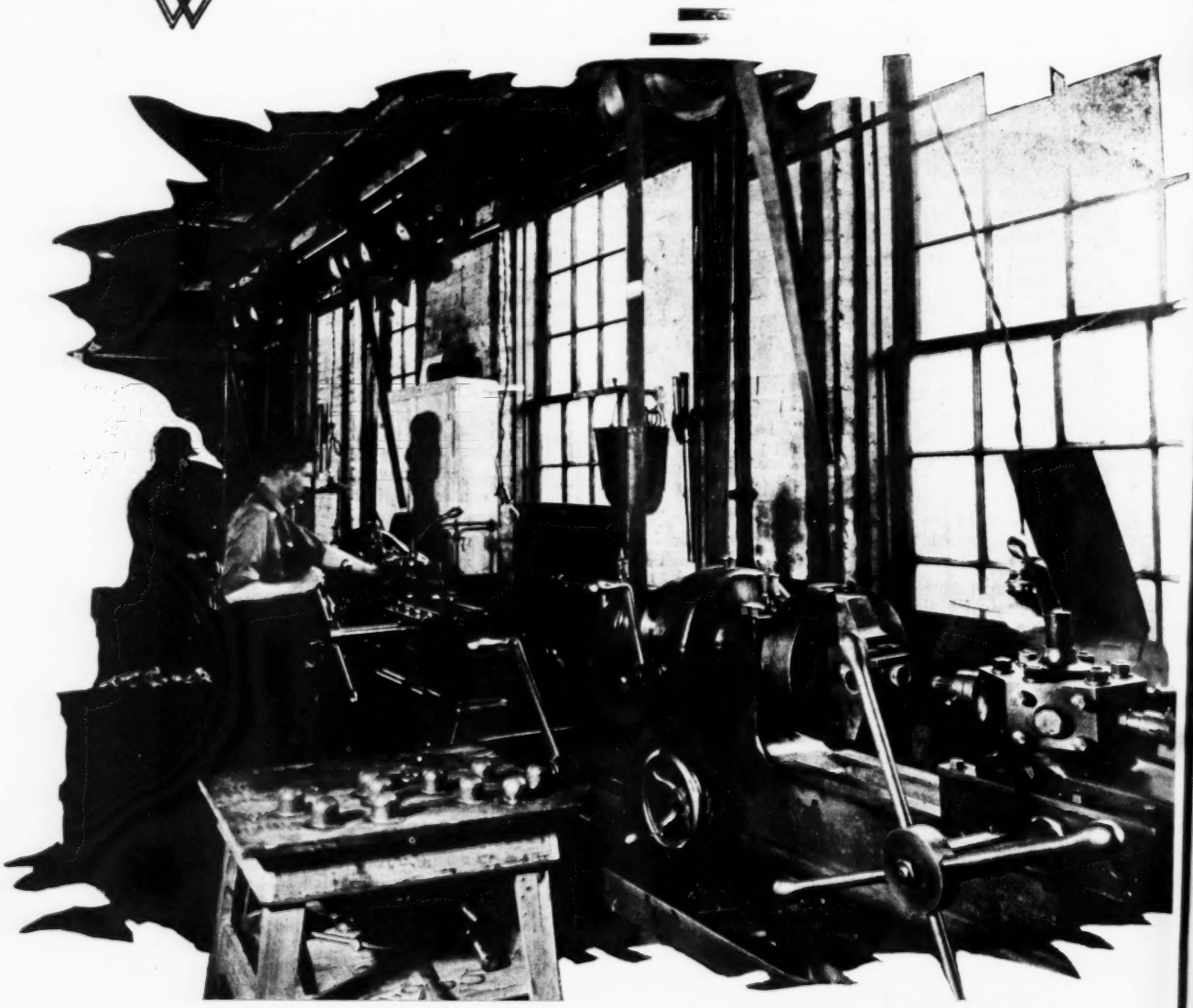
"We are now on the eve of the resumption of trade with Germany. It is hard for us to adjust ourselves to a state of trade with a nation with which so recently we were in bitter conflict. It is not possible, nor is it the intention, to isolate a nation with which we have made peace. Since, moreover, large indemnities have been asked from the enemy powers as partially recompense for the wrongs which they have done, we cannot make it impossible for them to meet these obligations. There is only one way in which Germany can pay her obligations to the Allies and that is by the production of her people. It is not possible to milk a cow and cut her throat at the same time. Before Germany can proceed with production she will need, first, food and raw materials. In certain instances she will have to obtain these commodities from the United States. Germany will then have to begin to pay her debts by means of exports."

BECOMES A BUSINESS MAN THROUGH HIS DISABILITY.

In spite of severe physical disabilities, ordinarily discouraging, many wounded soldiers are enthusiastic about their future, because of the training being given them by the Government. Take this case of one of them. He was born in Hungary, but at 19 was clerking in a grocery store in Alabama, when he enlisted and went overseas with the A. E. F. A high explosive shell shattered his left knee. While in the hospital this young man read of the work of the Federal Board for Vocational Education, and lost no time in applying for training. He is taking a business course at a commercial school in Birmingham, Ala., which will enable him to realize his long cherished ambition of becoming a business man. He wears a Croix de Guerre under his coat, and when asked for an explanation he laughingly says it was awarded to him for being killed in battle. In reality, he was reported killed, and the decoration was sent to his father.

If you know of any other disabled soldier who has an unsatisfied ambition, put him in touch with the Federal Board of Vocational Education at 200 New Jersey Avenue, Washington, or perhaps one of the District offices of the Board is located in your city.

Watch for the Farm Number of "Domestic Engineering."

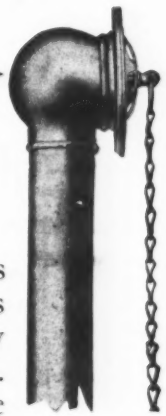


J. B. WISE, Inc.

Manufacturers of Plumb[illegible] Sa[illegible]

Mention DOMESTIC ENGINEERING when

Making the ball for "Ballo"



An Interesting Operation that Forms this Unusual Shape

YOU have often noted the ball on the "Wiseco" Ballo Connected Waste and Overflow. Here is where that ball is formed.

Specially made tools and dies are set into these machines and step by step the ball is formed from what might be termed cups of brass such as are shown on the work table beside the machine in the foreground.

The processes of formation are decidedly interesting to watch and require more space than we are allotted in this issue to tell about.

It is sufficient to state that this typically "Wiseco" production is true to the standards of quality and beauty set down by its makers. Probably no Connected Waste and Overflow on the market enjoys greater popularity than the "Ballo" nor has any been more successful in pleasing discriminating buyers and users of Plumbers' Sanitary Brass Goods.

In the forthcoming issue of "Domestic Engineering" we will show you an interesting method of making a positively leak-proof connection between the brass tubing and threaded collars used in "Wiseco" Products.

"WISECO" Products

Watertown, N.Y.

Sanitary Brass Goods

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Illinois Master Plumbers to Meet in Quincy in January.

At the semi-annual meeting of the Illinois State Association of Master Plumbers, held in Aurora recently, the city of Quincy was selected for holding the next state convention, which will be held the third week in January, 1920. This will be the first time a state convention was ever held in that city. Secretary W. C. Haviland has written manufacturers asking them if they are in favor of an exhibit at this meeting. Mr. Haviland's report of organization showed that he has covered a wide territory, and his efforts have resulted in 43 new members being enrolled. John L. Robertson, chairman of the Legistlative Committee, reported on the work that has been done since the state convention in Danville. In view of Governor Lowden being opposed to any change in the state plumbing law at this time, the committee has decided to remain inactive on this matter until the new administration two years hence. The following members of the board were present: President C. D. Brownell; First Vice-president E. J. Benning; Treasurer E. J. Ryan and Secretary W. C. Haviland.

Chicago and Vicinity.

The A. C. Flynn Heating Co., 4714 South Halsted Street, has been awarded the contract for the installation of a modern heating system in the three-story, 55x105 ft. grade school and hall building at Oak Street and Cambridge Avenue, for St. Phillip Benizi Parish. Modern plumbing is to be installed by the Stanley Plumbing & Heating Co., 6554 Cottage Grove Avenue.

Modern plumbing will be installed in the $85,000 Misericordia Hospital at Forty-seventh and Mozart streets by O'Callahan Bros., 157 North Market Street. The structure is to be three stories, 42x151 feet. Herlihy & Moard, 751 West Van Buren Street will install the heating system.

Kalina & Shock, Iriving Park and Milwaukee Avenues, were the successful bidders on the contract to install heating systems in two bungalows at 5337-5339 Berenice Avenue for Charles Opdahl.

The contract for the installation of heating and plumbing systems in the $50,000 three-story warehouse for Graham V. Grosvenor at 1435-1459 West Fifteenth Street, has been awarded to the Thos. Conlin Plumbing & Heating Co., 3978 Cottage Grove Avenue.

Thomas E. Duffy, 6704 South State Street, has secured the contract to install modern plumbing in the $30,000 warehouse to be built at 5000-5006 South Halsted Street for the Consumers' Sanitary Coffee and Butter Stores.

Four residences are being erected at 4931-4937 North Tripp Avenue by R. E. Knauer, who has awarded the contract for the installation of the plumbing equipment to G. A. Leebody, 3613 North Ashland Avenue.

Schampel & Dougherty, 175 West Washington Street, will install the heating system in the two-story residence being built at Kimbark Avenue and Fiftieth Street.

Architects George C. Nimmons & Co., 122 South Michigan Avenue, are taking bids for work on the $2,000,000 hotel to be built at Hyde Park Boulevard and the Lake by the Chicago Beach Hotel Co. It is to contain 550 rooms, twelve hole golf course on the first floor, cafe, dining room and 1,200 ft. veranda. The plans call for a twelve-story and basement, 323x233 ft. building, of brick, terra cotta and flat slab.

Plans have been prepared by Architects Holabird & Roche, 104 South Michigan Avenue, for the erection of the Blackhawk Hotel at 175-181 West Madison Street. It is to contain 500 rooms, restaurant and basement, banquet rooms and complete laundry plant, and will cost about $1,500,000. The hotel will be nineteen stories, 85x189 ft., of brick and stone and fireproof construction.

The Ravenswood Hospital plans to build a $300,000 addition to its present building at 1917 Wilson Avenue. The addition is to be seven stories, and will be of brick, stone and reinforced concrete.

Plans are ready for the erection of a $1,000,000 office building at the corner of Wabash Avenue and Harrison Street by William G. Shedd.

The Bureau of Engineering of the Chicago Department of Public Works has issued new rules and regulations governing service pipe installations, and these have been submitted to the Chicago Association of Master Plumbers by H. L. Lucas, superintendent of the Water Pipe Extension Bureau. The only change made is that fittings and connections in service pipes must be purchased from the Department of Public Works. It is aimed to establish uniformity and standardization of the various equipment used in such installations.

Other Cities in the State.

J. M. Shea & Co., of Peoria, have secured the plumbing and heating contracts on six two-family apartment buildings being erected for A. Hagerty, and for the plumbing contract on the Hull Building on Jefferson Avenue. They will also remodel the plumbing system in the Shufeldt Pure Food Products Co.'s factory.

J. Botorf & Co., of Peoria, have recently been awarded contracts for the installation of modern plumbing in a number of new residences in the course of construction in that city.

The Smith & McDaniel Plumbing & Heating Co., of Decatur, will install modern plumbing in 28 houses, and plumbing and heating equipment in the Osgood & Heiner Mfg. Co.'s factory.

E. J. Ryan, of Danville, has secured the heating and plumbing contracts on the new Bank of Catlin.

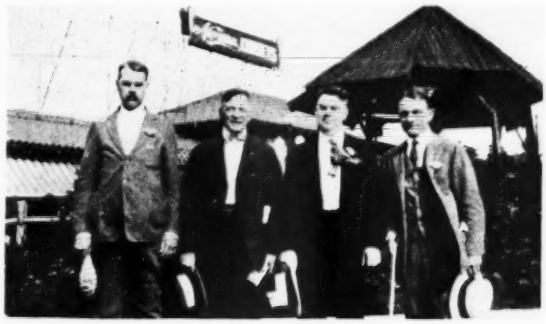
A. W. Murray, of Hoopeston, was the successful bidder for the plumbing and heating contracts on the $35,000 bank to be built at Buckley.

The Board of Education of Urbana plans to erect a $90,000 high school to contain a gymnasium, auditorium, domestic science rooms, etc. It will be three stories, 190x75 ft., and will be built at Rantoul.

Work has been started on the $110,000 high school in Wood River. Plans for a two-story school were drawn by Architect J. W. Kennedy, East St. Louis.

Cincinnati and Vicinity.

An idea of the increased building operations this summer over that of last year in the same season can be obtained from the July report of Building Commissioner Rendigs, which shows that during July, 1,000 permits were issued, involving more than $500,000, against 919 permits in July, 1918, involving a little less than $400,000. So far this year permits for improvements to cost more than $5,000,000 have been issued against a little more than $3,000,000 for the same period last year. Those who are building homes, are buying the best materials and consequently there is a decided shortage in various lines. Plumbers' supply houses report business showing some improvement right along with several of the concerns experiencing some trouble in securing certain materials. Contracts for factory buildings are reported by building contractors, who also report considerable improvement in contracts for home builders.



F. Vodekel, Jack Cripps, Joseph Crotty and John J. Vogelpohl, all of Cincinnati.—From "Domestic Engineering" Photo, taken at the recent Atlantic City Convention of the National Association of Master Plumbers.

More than $100,000 will be spent in remodeling the John C. Weber Co.'s cafe on Vine Street, near Fifth, which has been leased by the Bader Cafeteria Co., of Dayton, O.

The Cahill Shoe Co. will build a $20,000 addition on Kenner Street.

The City of Cincinnati is figuring on doubling the present system of comfort stations.

A ten-story loft building is to be erected at Canal and Elm Streets, one of the features of which is to be the assembling of the passenger and freight elevators, main stairways, smokestack and sanitary section in the southeast corner of the general floor plan.

Architects are at work on plans for a hospital which is to be added to the Clovernook Home for the Blind. A third floor also is to be added to one of the wings.

Elzner & Anderson are drawing plans for the extensions of the Homestead Hotel, Hot Springs, Va., which is to include an additional dining room, cabaret hall, motion picture theater and solarium.

Proctor & Collier will go ahead with their extensive building program which was halted by the war. The main building is to be 110 feet square. One of the features will be a clock tower which will conceal a water tank.

The Coventry Township Board of Education will build a schoolhouse near Lockwood's corner, Coventry Township, Summit County, O.

The G. A. Schact Motor Car Co. will build a one-story addition, 90 feet square, to its group of buildings.

A 50 percent increase in the manufacturing facilities of the American Laundry Machinery Co. in Norwood will be available before the close of the year, the corporation having given the general contract for the extension of its plant, to cost $100,000.

Owing to the recent increase of its business the Hammond Heating Co. has been compelled to seek larger quarters and has moved to its new home at 110 East Second Street. It reports that there is a big demand for modern heating apparatus throughout the South.

The Standard Oil Co. will build a cooperage shop to cost $145,000, the permit having been recently granted.

The Globe-Wernicke Co. has let contracts for the largest factory addition in years in the Cincinnati district, the new section to have a frontage of 1,300 feet on Ross Avenue north of the main plant in Norwood, to cost $500,000. Another addition to cost $150,000 already is under way.

A combination swimming pool and skating rink will be constructed on Walnut Hills, to cost $150,000.

The Black Diamond Manufacturing Co. will erect a new three story structure, 50 by 80 ft.

Ohio Heating Engineers and Heating Contractors Hold Joint Outing.

The summer outing of the Ohio Chapter of the American Society of Heating and Ventilating Engineers and the Cleveland Association of Heating and Piping Contractors was held jointly on Friday, August 1st, at Chippewa Lake, about forty miles south of Cleveland. About seventy-five people turned out to take part in this event, which was open to members of both organizations, their families and friends. The weather was perfect for the occasion. The parties gathered at the Cleveland Court House at 9 a. m. and proceeded to the lake, some by motor and others by the interurban route, special cars having been provided. The amusement program at the lake included bathing, boating, bowling, dancing and many outdoor contests, the winners of which were given suitable prizes. Among the prize-winners were F. G. Birdges, who won the pipe and tobacco race, while Mort Crowell, who showed some of the old spirit of his football days, led his team to victory in the tug-of-war and baseball games. The heating contractors were successful in the latter event. Frank Dow did not arrive in time for the tug-of-war, otherwise the final might have been somewhat different. E. F. Bohm acted as referee in all outdoor sports, and when he got through the physician announced: "No bones broken; complete recovery likely; stimulant desirable, if available." **Miss Marion Bacon,** daughter of J. H. Bacon, gave an exhibition dance in the pavilion during the course of the day.

The Joint Entertainment committee was as follows: Heating contractors, Henry Henrichsen, chairman; M. Jones, Robert Rowe, E. Credicott, E. Bohunek. Heating Engineers, F. H. Valentine, secretary; J. J. Mason, chairman; I. B. Coe, M. L. Foote, J. H. Bacon, A. E. Tomlinson, and E. F. Bohm, secretary of the Joint Committee.

Date Fixed for Mahoning Valley Plumbers' Ninth Annual Outing.

The Mahoning Valley Master Plumbers' Association and Local Union No. 87, Journeyman Plumbers will hold their Ninth Annual Joint Outing in Southern Park, Youngstown, on Saturday, August 23rd. Owing to the great success of the eight former events of these organizations a large attendance is confidently expected. The following committee is in charge of arrangements: **T. G. Beede, C.** F. Henry, William Rowland, C. W. Wilson, F. W. Pfund, R. Seddon, Harry Davis and Roy Edwards.

Indiana

Indianapolis and Vicinity.

Although the number of building permits issued by the city building inspector in Indianapolis during the month of July was not as great as during the month of June—the record month since the office was established so far as the number of permits is concerned—the total property valuation was greater by about $700,000. The records for the present year already show more permits issued and the valuation much greater than last year, and it is expected that before the end of the year a new record for a year's work will be made. Building seems to have reached its normal stride in spite of both a poor start in the early months of the year and increased costs of materials. During the first three months of the present year no month showed anything near an average, but during the month of April the valuation of permits jumped to nearly the $1,000,000 mark, and during May and June climbed over this. July permits reached a total of nearly $2,000,0000. The number of permits issued was 784.

Herman F. Zietlow, 548 Eastern Avenue, has been awarded the contract for the installation of heating and plumbing systems in the new high school building that is to be erected near Lebanon, Ind. Work on the new structure will be started at once.

Freyn Bros., of 31 West Michigan Street, have received the contract for the installation of plumbing and heating systems in a new apartment building at 821 North Pennsylvania Street.

Other Cities in the State.

The Hipskind Heating and Plumbing Co., of Wabash, has been awarded the contract for the installation of heating, ventilating and plumbing equipment in the new Victory theater that is being erected at Kokomo. The equipment to be installed will be strictly up-to-date and will make it possible to force air changes through the auditorium every five minutes. By the process, the fresh air is to be taken into the building through the roof, conducted to the basement, where it will be heated, and driven back into the attic, from which point it will be redistributed to the auditorium.

The Liege Heating and Ventilating Co., of Auburn, has been awarded the contract for the installation of a heating system in the new high school building that is to be erected on South Main Street in that city. The concern is now installing a heating plant in the Harrison school on South Indiana Avenue.

Wissel & Christman, of 1402 Wabash Avenue, Terre Haute, have been awarded the contract for the installation of plumbing and heating systems in the new $35,000 school building that is to be erected at Cedarville, Vigo County. The contract calls for an expenditure of approximately $8,000.

M. A. Hawkes, of Elwood, has been awarded the contract for making extensive alterations in the heating and plumbing systems in a building there that is being remodeled to be headquarters for the Citizens State Bank. The cost of improvements is estimated at $20,000.

The McCracken Plumbing Co., of Elwood, has been awarded the contract for the installation of plumbing fixtures and equipment in the new comfort station that is being erected for the city of Elwood.

Hutzel & Co., of Muncie, were the successful bidders for the plumbing contract on the new addition to the high school building at Mooreland, Ind. The heating contract was awarded to W. H. Johnson & Sons Co., of 330 East St. Joseph Street, Indianapolis. The new structure will cost $20,000.

Wm. H. Dreves, of Elkhart, has been awarded the contract for the installation of modern plumbing in the $200,000 high school in that city.

The contract for making extensive alterations in the plumbing and heating systems in the Farmers' National Bank at Princeton, Ind., has been awarded to the Noble Heating & Plumbing Co., of Princeton.

The Lane, Pyke, Werkhoff Co., of Lafayette, has been awarded the contract for the installation of plumbing and heating systems in the new $40,000 garage that is being erected on East Clinton Street, Frankfort, Ind., for Miller & Helfie, of that city.

The Fort Wayne Heating Co., of Fort Wayne, has received the contract for making extensive alterations in the plumbing and heating systems of the Goodman department store on Calhoun Street. A new addition is also to be erected at a cost of $40,000.

The plumbing and heating contracts on a new $10,000 residence that is to be erected at Terre Haute for John S. Ahlgren were awarded to the firm of Freitag, Weinhardt & Co., of 664 Wabash Avenue. The structure is to be finished before winter.

The Hipskind Plumbing & Heating Co., of Wabash, recently was awarded the contract for installing the heating and plumbing systems in the new $25,000 high school building that is to be erected at Dora.

The contract for the installation of the plumbing and heating systems in the new salesrooms and garage that are to be erected at Michigan City for the firm of Welff Bros., of 1002 Franklin Street, has been awarded to the firm of Simpson & Adamson.

George Kleder, of 719 East Twenty-second Street, Indianapolis, was the successful bidder for the plumbing contract on the new two-story residence that is to be erected at Meridian and Sixty-second Streets for Samuel T. Brown, of 3817 North Pennsylvania Street. The new house will cost about $20,000.

Kentucky

Louisville and Vicinity.

Gray & Tomppert, of Louisville, have several good contracts, including one involving the remodeling of the S. S. Kresge Building on Fourth Avenue.

Haller & Zehnder have recently secured the contract for plumbing on the big addition to the eight-story Atherton Building, which will be erected by the Alfred Struck Co.

Several general contractors of Louisville who are in the lumber and planing mill business, have quit accepting any contracts on a flat rate, quoting merely on a percentage basis for profits on actual cost. Due to high labor and uncertain material markets several contractors have been forced to accept losses on jobs, and are playing a more conservative game.

M. J. Duffy & Sons Co. recently filed amended articles of incorporation, in which the capital stock of the concern was reduced from $25,000 to $10,000.

The Laib Co., of Louisville, which also operates the Columbia Sanitary Mfg. Co., has recently taken out a permit for a plant addition to cost $30,000, the addition to be 100x350 feet.

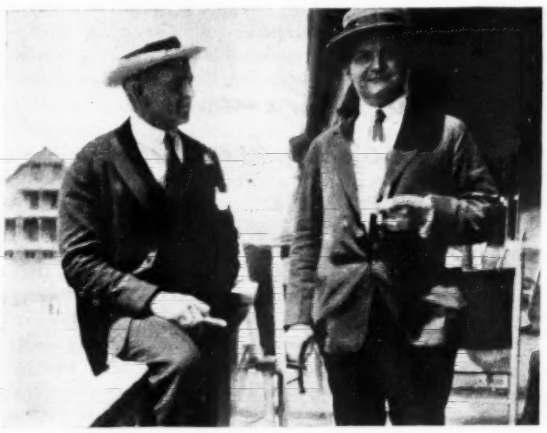
J. J. Bosemer, Louisville master plumber, is one of the incorporators of the Constructive Food Co., of Louisville, which will manufacture a formulæ foodstuff.

New Jersey

Newark and Vicinity.

Samuel Levine of 199 Prince Street, Newark, has secured the plumbing contract on a new $90,000 apartment building in course of construction at East Orange by Portnoff & Krasny.

F. & W. V. Engelberger, 159 Jelliff Avenue, Newark, will install modern plumbing in a new factory addition for the United Pepsin Gum Co., in that city.



President Frank B. Lasette, New York City, and Vice-President D. F. Durkin, Jr., Philadelphia, both of the National Association of Master Plumbers.—From Photo, taken at the recent Atlantic City Convention.

Westfield and Vicinity.

H. Goodfriend has opened a plumbing and heating establishment at 310 North Avenue in Westfield.

W. P. Steuernagel who has been working on the Pennsylvania Hotel in New York City during the last two years, has opened a plumbing establishment in Westfield and will install modern plumbing in the Barret Co.'s plant at Fairwood.

John L. Miller of Westfield has recently secured several fine plumbing and heating contracts among them are those for work on two houses for J. Gallager, residences for W. T. Spencer and L. Powers. He recently installed modern plumbing and a vapor vacuum system in the C. M. Codding residence.

Rhode Island

The town of West Warwick has voted to install modern toilet facilities in the Pheonix and Riverpoint schoolhouses and will award contracts shortly.

The city of Providence is planning to experiment during the coming fall with oil for heating the city hall building. The finance committee of the city government, which has been investigating the proposition, believes that a saving of at least $1,600 a year can be effected by the use of fuel oil, and if the plan works out, it is likely that other municipal buildings will be fitted with oil-burning heaters. A contract for changing over the heaters at the city hall will be placed shortly, so that everything will be in readiness for the first cool day of the fall.

Massachusetts

Boston and Vicinity.

Announcements are out for the annual outing and shore dinner of the Master Plumbers' Association of Boston and Vicinity, to be held at the Villa Napoli, at Nantasket Beach, on Wednesday, August 20. The trip down the harbor will be one of the features of the day and the chief sporting event will be the annual baseball match between the master plumbers and the jobbers, which is scheduled to take place at 11 a. m. P. W. Donoghue, chairman of the outing committee, in his letter to the members urges all to "come down and get a good dinner and meet the members from the other side of the city." Notifications of those who plan to attend are to be sent to J. Preston Perham.

Seven big automobiles, loaded to the gunwales with "jolly good fellows," left Haverhill, early in the forenoon on Wednesday, July 30, and wended their way to "Hap" Ward's noted hostelry at Lynnfield, where the annual outing of the Haverhill Master Plumbers' Association was held. At Wardhurst they found nearly as many salesmen awaiting them ready and anxious to test their atheletic prowess. When the party gathered about the festive board for one of the chicken and lobster dinners, for which Wardhurst is noted, it was found that there were just fifty-two plumbers and salesmen on hand. The dinner received the attention which it deserved. The principal athletic event of the day was a baseball game between the master plumbers and the salesmen, which the salesmen won by the close score of 11 to 10. The master plumbers had their revenge, however, as they carried off the honors in the tug of war. Other events included a 100-yard dash, sack race, three-legged race and fat man's race. Albert Dugdale, a member of the Haverhill plumbing firm of Murray & Dugdale, won the fat man's race in a walk, and received as a prize a pair of lady's silk hose. When the party broke up late in the day it was with a feeling, often expressed, that the outing was one of the best that the association had ever held. This was due in a large measure to the careful preparations of the able committee, consisting of William P. McAree, O. F. Bennett and Clarence M. Neily.

Other Cities in the State.

The resolution, recently adopted by the Textile Council at New Bedford, calling upon the city government to take steps for the establishment of public convenience stations, is meeting with general approval. The New Bedford Standard, a leading afternoon newspaper in that city, has taken the matter up and declares the city council should proceed at once to a thorough study of the question. "For some reason" the editorial continues, "the demand for comfort stations in New Bedford has always had a cold reception. Some people have a foolish notion the very idea is indelicate. Prudishness has undoubtedly been a factor in preventing favorable consideration of comfort station proposals. In a city like this a comfort station is demanded not only by considerations of convenience but by considerations of health as well."

Members of the Parks and Recreation Commission at Worcester have lost no time in getting to work on the erection of public convenience stations in the parks, for which money was recently made available by the citys government. Instead of erecting two stations, as was at first proposed, the commission plans for three, one at Crompton park, one at Green Hill and the third at Elm park. The

contract for the Crompton park structure has been let, and plans are being prepared for the others.

A contract for plumbing work in the Rhoades school, at Lynn, has been awarded to Donovan & Co., of that city.

The Wyckoff & Lloyd Co., of Springfield, was the lowest bidder for the heating contract in the Belcher school, at Chicopee, and will be given the contract. The bids follow: Wyckoff & Lloyd Co., $7,428; Gavin & Moriarty, Williamanset, $8,249; Charles E. Ludden, Chicopee, $8457; William E. Donnely, Chicopee, $8,550.

A. Lincoln Moody, inspector plumbing at Waltham, is just completing twenty-five years of service in that capacity, a record which it is believed by his friends is not equalled by any other plumbing inspector in the state. Mr. Moody was appointed to the position on August 1, 1894, being the first to hold the office in Waltham. At the time of his appointment he conducted a plumbing business. Until a few years ago, when increased business made necessary a separation of the offices, Mr. Moody held also the position of agent of the board of health. He is a past-president of the Massachusetts Association of Plumbing Inspectors, now the New England Association.

Employes of the American Plumbing and Heating Co., at Fall River, were the guests of the manager, James Gildard, at a clambake held in that city on Saturday, July 26th. Mr. Gildard also is manager of the American Roller Co., and the American Motor Co., and employes of those concerns also were present, making about eighty in all. Mr. Gildard, who is a practical plumber, learned his trade with the old established firm of Nathan Miller & Sons, Inc., and he had as his special guest at the outing the head of that firm, Nathan Miller, who spoke to the gathering.

R. H. Hubbard, formerly of Greenfield, has opened a plumbing establishment in the Swan building, at South Deerfield.

A contract for heating in the Ordway school, at Amesbury, has been placed with the Amesbury Heating and Plumbing Co., of that town.

The town of Shrewbury is considering changes in the plumbing arrangements at the high school, erection of a new schoolhouse and extension of the water system.

Portland and Vicinity.

The Master Plumbers of Maine will hold their ninth annual outing on August 18th at Portland. President Mahoney will be among the speakers and it is estimated that about 150 will attend. A shore dinner and clam bake will be among the features of the day's outing.

Plans have been prepared for a new $30,000 fire station for Portland also for a large modern factory for the American Can Co.

Myers & Mahoney, 73 Union Street, will remodel the plumbing in the Holy Innocence Home and will install four modern bath rooms in the fine new residence of Jos. B. Brennan.

F. E. Wheeler, 530 Forest Avenue, has been awarded contracts for the installation of plumbing and heating systems in twelve new apartments and in the R. N. Bryant residence.

Carney, Hodgdon & Co., 166 Woodford Street, will install the heating systems in two new residences and modern plumbing in residences of Mr. Glenn, F. Tarbox and A. J. Robinson.

Myles F. O'Sullivan, 114 Brackett Street, has recently secured several fine residence contracts among them are those for plumbing in Rev. Bustard's and N. Barrows' residences and plumbing and heating in residences for E. Anderson and A. H. Hinds.

J. E. Coughlin has opened a plumbing, heating and ventilating establishment at 98 Portland Street and has equipped it with a fine large show room.

W. E. Nugent has moved to 83 Clark Street. He has been awarded a $25,000 contract by the Government, which calls for the installation of modern fixtures, general remodeling and alterations on the permanent barracks at Ft. Williams and Ft. McKinley, also the installation of sanitary equipment in the two camp hospitals.

Bids for installing plumbing in a new central fire station at Portland have been received as follows: M. C. Hutchinson, $3,842; Wiley & Calhoun, $3,860. For the heating Wiley & Calhoun bid $3,795, and A. B. Fels $4,234.

Other Cities in the State.

F. M. Murray, 239 Main Street, Saco, has moved from 33 Mechanic Street and has been awarded the plumbing contracts on the Billow Home, the B. C. Wentworth residence Hollyhurst Cottage and Professor Anthony's cottage at Bay View also the plumbing and heating contracts on the Chas. Emery residence.

F. E. Johnson & Son, of York Village, have recently purchased the hardware store of W. F. Balisdelm and will extend it to include their plumbing and heating business. They will install the plumbing equipment, to consist of seven fine modern bathrooms, in the new large Marshall House also the plumbing system in Geo. Britt's summer home.

Joseph G. Hotte & Son, 10 Oak Street, Biddeford, will install the heating system in the Woolworth store and modern plumbing in the Donaldson and Hill residences in Old Orchard.

G. W. Larrabee Co., of Kinnebunk, will install four complete bathrooms with showers in the Henry Parsons residence.

J. H. Emmons, 216 Alfred Street, Biddeford, has been awarded the contract to install modern plumbing in the Y. W. C. A. and hot water heating systems in three vegetable hot houses for R. E. Davis.

Abram T. Lord, of the plumbing and stove firm of Abram T. Lord & Son, of Saco, has retired from active business after fifty-five years, of which forty-four years has been spent in Saco. Mr. Lord first opened a stove business in Skowhegan, Me., in 1864 and moved to Portland a few years later. After remaining in that city for a time he opened a plumbing and stove business in Saco, in 1875. For many years he was associated with William Linnell, under the firm name of Lord & Linnell. Of recent years the business, conducted by Mr. Lord and his son, has been located on Main Street, Saco.

Portsmouth and Vicinity.

Cattle & McCarthy, 1033 Maplewood Avenue, Portsmouth, will install the heating system in the Rockingham County Court House and plumbing and heating systems in residences for Peter Gillette, V. Wood and John Knowles.

W. F. Washburn, 57 Bow Street, Portsmouth, has been awarded the contracts for the installation of plumbing and heating systems in three stores, a printing office, and two tenements for Harry Cohen, and in residences for P. Walsh and Mr. McNeil.

Pennsylvania

Philadelphia and Vicinity.

T. D. Clark has been awarded the plumbing contract on the Women's Club at Germantown.

Gray & Dormer have been awarded the plumbing contract on a factory that is being erected at 452 York Avenue for W. P. Miller.

M. H. Baker, of Harrisburg, has been awarded the heating and plumbing contract for three residences that are being erected for J. W. Kline.

Charles Crabbe of Harrisburg, has secured the plumbing contract on a residence being built for H. B. McCormick.

George B. Grey has been awarded the following contracts: Plumbing and heating in Sidney B. Hutchinson's house, plumbing in new club house at Sea View Golf Club, Atlantic City, N. J., and in Atlantic Refining Co.'s plant in Philadelphia.

B. Kauffman, 1700 South Fifty-fourth Street, has been awarded the contract to install modern plumbing in seven residences that are being erected at Eleventh and Winjohocking Streets, for the Rose Construction Co.

Raynor Plumbing Co. has secured the plumbing contract on 74 residences that are being erected at Kensington and Luzerne Streets for E. Raymond. F. Fluck, 548 North Eighth Street, has the heating contract.

L. Krouse, 4941 North Fifth Street, has secured the plumbing contract on 15 residences that are being built for William Kuhn at Olney.

Jas. C. Brown, 5503 Mascher Street, has been awarded the plumbing contract on eight residences that are being built in Olney for S. W. Cook.

Walters, Purks & Mellon, have been awarded the plumbing contract in new school building that is being erected in Camden, N. J., for Camden Board of Education.

W. M. Anderson has been awarded the plumbing contract on a new factory that is being erected in Chester, for Aberfoyle Mfg. Co. Consideration, $10,000.

Wm. C. Leopold, 2822 North Nineteenth Street, has been awarded the plumbing contract on a new summer residence that is being erected in Elkins Park for M. Spaulding. Consideration, $7,000.

J. W. Mathews, Fifteenth and Race Streets, has been awarded the contract to install plumbing in a new school that is being built in Eddystone. American Heating & Ventilating Co. has the heating contract.

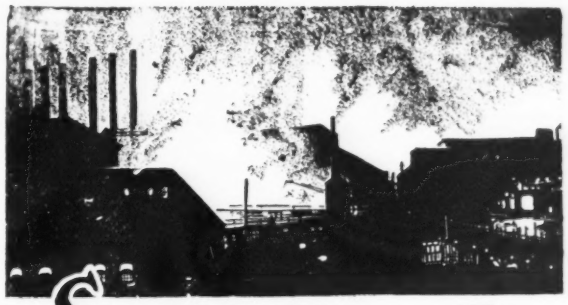
T. F. Dempsey, Seventieth and Woodland Avenue, has been awarded a contract to install plumbing and heating in two stores and apartments that are being erected in Fernwood for W. Lipkin.

W. H. Kline, of Waynesboro, has been awarded the plumbing and heating contracts on a new residence that is being erected at Waynesboro for Dr. W. D. O'Rourke. Consideration, $4,000.

The J. Frank Boyer Plumbing & Heating Co., of Norristown, has secured the contract to install a new boiler and remodel the heating system in the public school at Conshohocken. The contract amounts to $4,500.

Geo. Supplee, of Narberth, has been awarded the plumbing contract on a new residence that is being erected in Haverford for W. J. Seary. F. Sabin & Co., 237 Bread Street, have the heating contract.

Finnegan Bros. of Darby, have secured the contract to install modern plumbing in a new bungalow that is being built in Alden for W. Douglass.



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The
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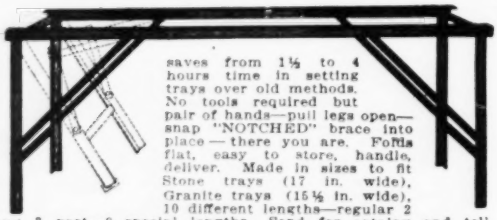
The "JIFFY" Folding Laundry Tray Frame



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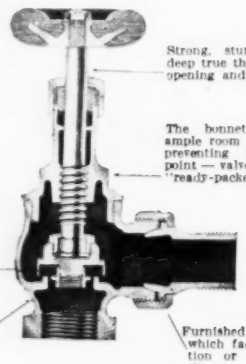
Jenkins Radiator Valves are made in Globe, Angle, Offset and corner patterns with various body finishes and trimmings.



Strong, sturdy spindle with deep true threads which make opening and closing easy.

The bonnet is large with ample room for packing, thus preventing leakage at this point — valves are supplied "ready-packed".

Jenkins Renewable Composition Disc that forms perfect contact on the seat and prevents leakage.

Body of uniform construction with an even distribution of metal and no weak points.

Furnished with union which facilitates installation or removal at any time.

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2067-V

Pittsburgh and Vicinity.

The McGinness Co. has the contract for all labor and material for the installation of a new hot water heating system in connection with the alterations and additions to a bank building at 709 East Ohio Street, North Side.

The general contract for 50 houses at Jeannette, Pa., has been awarded to Yoho & Hooker, Akron, O., by Architect George H. Schwan, Peoples Bank Building, Pittsburgh. Sub contracts will soon be let.

Bids are being taken for the construction of a store and apartment building at Tarentum, owner J. P. Coyle, Sixth Avenue, Tarentum, the estimated cost of which will be $25,000.

The erection of new automobile garages continues to be a feature of local building operations. The contract for another large commercial garage was let recently by Carl Storch, to be erected on Brownsville Avenue, Mt. Oliver, by S. A. Hamel contractor. A councilmanic committee has approved the permit to J. H. Harnett for the construction of a large commercial garage at Center Avenue and Cypress Street, with the understanding that it will comply fully with the new building code, which is in course of preparation. On the allegation of well known citizens of Atwood Street that the specifications for a new garage on an old skating rink site by H. Miller & Sons do not comply with the terms of the new code, the application for a permit was referred to the building code commission.

One of the largest transfers of land in Pittsburgh, yet recorded in Allegheny county, is that of nine tracts in Wilmerding, by the Westinghouse Airbrake Co. to the Westinghouse Home Co. for $1,000,000. More than 100 dwellings are included and several hundred others are under construction to house the employes of the company.

A new departure has been undertaken by the Westinghouse Electric & Manufacturing Co. on Braddock Avenue, East Pittsburgh, where a large and handsome brick building is being erected for the purpose of feeding and entertaining thousands of employes of the concern. Work on the new building is progressing rapidly under the direction of Architect Bernard H. Prack, and it is hoped to have the lunch club in complete operation before the end of the year. It will be one of the largest restaurants in the world, with a seating capacity of not less than 3,000 persons. The building will be of buff brick and three stories in height, with the first two floors devoted to cafeteria service and the third floor containing modern kitchen, restaurant and auditorium. The building is to be steam heated throughout and equipped with the most modern system of electric lighting. Many of the ideas to be installed are the result of practical experience gained through the operation of Section M dining room, in the electric works, one of the largest and most completely equipped cafeterias in the country, and serving daily at noon hour from 1,700 to 1,800 girls. When completed this lunch club will be available for the accommodation of all employes of the works and offices and a "service at cost" plan will be in operation. There will be no stairways in the building, the second and third floors being reached by means of inclines.

Boroughs and surrounding towns are planning to issue millions of dollars worth of improvement bonds during the fall and winter, and the fall elections will carry propositions to dispose of these bonds. The money, in large part, is to be spent for school buildings and other absolutely necessary forms of construction. Swissvale borough plans to spend at least $200,000 for a new high school building; East Pittsburgh also will ask for an

issue of $200,000, and Turtle Creek borough now has plans under way that will cost more than $200,000. Several other boroughs and towns are also talking of similar programs for the fall.

Missouri

St. Louis and Vicinity.

An obstacle that has seriously handicapped building in St. Louis, and which has been a severe blow to plumbers, was removed by the recent action of the Board of Aldermen when a set of amendments to the zoning ordinances was passed, permitting the erection of buildings estimated to have an aggregate value of $5,500,000. This construction work was held up because of the inability of Director of Public Safety McKelvey to issue permits under the zoning laws as then existed. The Aldermanic Legislation Committee refused to make a fevorable report on a proposed amendment, which would have delegated to the Board of Public Service discretionary powers in the matter of determining the granting of building permits for which application had been refused by the Building Commissioner. St. Louis promoters, contractors, tradesmen, and union leaders bitterly criticised the City Plan Commission, where the zoning ordinances originated. The zoning ordinances controlled the height, area, type and location of buildings in certain areas marked out in the ordinances, and investors desiring to erect expensive buildings on valuable ground found themselves facing the problem of limiting the size, providing for "yard space" and numerous other details, or of abandoning the building altogether. The investors' inclination to the latter course aroused the board to speedy action.

A contract to install the plumbing system in a new five-story hotel at 706 King's Highway, has been awarded to the Lamb Plumbing Co., 2628 South Twelfth Street.

The J. A. McBride Plumbing & Heating Co., 1607 Elvice Street, has been awarded the contract to install the plumbing and heating systems in the new $50,000 automobile assembly plant and sales room, which is being erected for a tenant by the Washington University Investment Co., at Nineteenth and Locust Streets. Fred Schmidt was awarded the building contract.

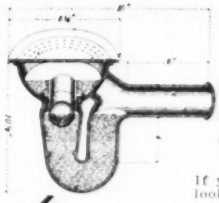
J. J. Abberici, 1547 Early Avenue, has been awarded the general building contract for a one and a half story residence and garage at University City, Mo., and is taking bids for plumbing and heating.

F. Hablutzel has been awarded the contract to install steam heating systems and boilers in three residences to be erected at 7215 Pershing Avenue by the Reliance Construction Co. The contract for plumbing has not been let and bids are being considered.

From a large field of bidders, the Schwehr Plumbing Co., 828 North Eighth Street, won the plumbing contract for the six-story factory and salesroom to be erected by the Ely & Walker Dry Goods Co., adjoining its present building at Fourteenth and Washington Avenues. The general contract was awarded to the Hartman Schuerman Construction Co. The plumbing work is said to run into five figures.

The Fleischmann Construction Co., 5314 Seventh Avenue, New York City, is the general contractor for the $600,000 theater, which will be erected in St. Louis, at Grand and Lucas Avenues, and is taking bids on subcontracts.

Building permits issued in St. Louis during the month of July are almost double the number issued in the same period of 1918, according to figures compiled by Building Commissioner McKelvey, who declared that last month would have set a record were it not for the fact that the $5,500,000 worth



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Open Trap deep seal backwater drain with concealed brass cleanout

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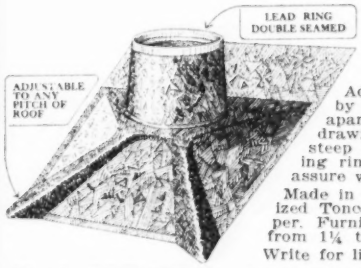

Upper end of flashing rests under shingles. Made with stiff edge easy to nail securely to roof.

Adjustment is made by spreading ridges apart for flat roof, or drawing together for steep roof. Lead calking ring grooved on to assure water tight joint.

Made in 27 gauge galvanized Toncan metal or copper. Furnished in all sizes from 1¼ to 6 in.

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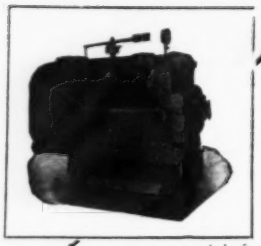

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Furnished complete with hose and sprinkler.
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For Town, Suburban and Country Homes, Public and Private Buildings, Summer Resorts, Parks and Other Uses.

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Built in many styles and sizes, for use with any pressure tank and for operation by any power, they cover a wide range of pumping needs and enable a dealer or plumber to meet every requirement of his trade. Simplified and improved construction, and many new features permit easy installation and operation, and dependable service.

SOMETHING ENTIRELY NEW IN

SILL-COCKS

Semi-Finished, Polished aluminum wheel Style N.
Style O—Heavy rough pattern built for service.

STYLE N **Both shown in catalog D** **STYLE O**

KINSEY & MAHLER CO. ***Peoria, Ill.***

of building was being held up on account of a controversey over building ordinances. In July, last year, 495 permits, for work aggregating $1,159,535, were issued, and during the past month 887 permits, for an expenditure of $3,302,537 were allowed. Of the latter sum $2,883,379 is being spent for new buildings and the remainder for alterations. The greatest expenditure for new buildings is $1,753,450 for manufacturing plants and work shops. One hundred and nine brick dwellings, each costing less than $20,000, are in course of construction.

Plans are being drawn for the construction of one hundred brick bungalows at Kenwood Springs, a subdivision about eight miles northwest of St. Louis, by interests represented by A. A. Fisher, who has offices in the Wainright Building. The structures will be one-story and each will cost $5,000. While it has not been announced whether the contract will be awarded for the whole lot, it is understood that 25 dwellings will be bid on at a time. According to a reliable source, Herman Luyties, St. Louis building promoter, is the chief financial figure in the project. Mr. Luyties at one time owned all the property in Kenwood Springs, and recently, through a big advertising campaign, sold the last of a large number of small homes, which he had erected there at a cost of $150,000. The new buildings will be 25x32 ft. and will have slate roofs. Steam heat will be installed in all, and each will have a tile bath.

California

San Francisco and Vicinity.

Building is still going forward at a rapid rate in and about San Francisco, resulting in a steadily increasing demand for plumbing supplies. No decline of prices has been indicated, in fact, plumbing establishments report regularly, raises in prices which discourage all hope of the builder that material costs will drop.

The plumbing contract for the building at Sixteenth Street and Albion Avenue has been given to Chas. Rehn, contractor of this city. The amount of the contract is $2,675.

At the amount of $1,273, N. George Wineholz will install the plumbing system in the building in Second Street, near Harrison.

Architect Lewis P. Hobart is preparing plans for a two-story and basement frame and plaster residence to be erected in Presidio Terrace at an esimated cost of $22,000. Modern plumbing fixtures will be used throughout.

Plans are now being completed by Architect G. A. Landsburgh for a six-story and basement class C addition to the Livingston Bros. department store on the northeast corner of Geary Street and Grant Avenue.

Ahlbach & Mayer have secured the contract for plumbing on a one-story and basement brick and concrete building in Van Ness Avenue, near Ellis Street; consideration $750.

Architect Geo. W. Kelham has completed plans for a twelve-story, class A office building for the Balfour-Guthrie Co., to be erected on the southeast corner of California and Sansome Streets. Sub-figures on the construction work will be ready shortly.

Architects Rousseau & Rousseau have been commissioned to prepare plans for a five-story and basement, class C apartment building to be erected on the south side of Sutter Street, between Taylor and Jones Streets. The structure is to contain 80 rooms arranged into suites of two and three rooms each.

Preliminary plans are being prepared by Architect G. A. Applegarth for the construction of an 11-story building to be erected on the corner of Larkin and Francisco Streets at an estimated cost of $500,000.

The Dinwiddie Construction Co. has contracted with William F. Wilson for the heating system to be installed in the Robert Dollar Building, at Battery and California Streets, for $6,586.

A building permit has been issued to Daniel and Thomas O'Day for the erection of a one-story concrete public garage in this city at an estimated cost of $15,000.

Architect F. H. Meyer is preparing plans for altering the Cogswell College, at 26th and Folsom Streets, at an estimated cost of $30,000.

Other Cities in the State.

Extensions in the plans for the proposed new Alameda County Hospital in Oakland, will bring the total cost of the project to more than $2,500,000. When completed, this building will represent the highest type of structure of this character in the country.

Figures are now being taken for the construction of a six-story apartment building to be erected in Oakland, by Architect Chas. H. Skidmore, of San Francisco. The estimated cost is $100,000. He is also taking figures on a six-story apartment house to be erected in Post Street, San Francisco, at an estimated cost of $85,000. This building is to have two apartments on each floor and a garage for the accommodation of thirty machines.

Oregon

Portland and Vicinity.

Building statistics in Portland indicate that business structures bid fair to become the largest part of construction work, although residence building is still running strong. Plumbing and heating contractors have had a busy season, and have done extensive bidding on projects in towns adjacent to Portland. Building work has been active all through Oregon for the past three months. A large number of schools has been built or will be completed before the fall term of school.

Architects Lawrence & Holford, Chamber of Commerce Building, have completed plans for the proposed women's building for the university of Oregon at Eugene, and the Board of Regents will pass upon them in the near future. If approved, bids will be called for at once. Structure will cost about $200,000. It is understood separate bids will be asked for plumbing. Structure will be heated from the central heating plant.

Parker & Banfield of Portland, submitted the low bid for the proposed Elks' Building at Pendleton, which will cost $167,000. The bid was accepted conditionally. Low bid on heating was submitted by Kendall Heating Co. of Portland.

Architect E. E. McClaran, Lumber Exchange Building, has completed plans for three buildings on which bids will be received at once. The larger of the buildings is a three-story brick hospital at Klamath Falls for Dr. Warren Hunt. It will be of brick, 40x100 feet, to contain 70 rooms, and to cost $40,000. Heat will be supplied by the central heating plant. Another building is a brick apartment house for G. W. White at Klamath Falls. The structure will be two stories, 40x130 feet, to contain 16 three-room apartments. Each apartment will have private bath, and a steam heating system will be installed. Struc-

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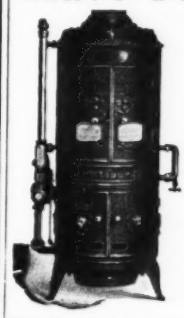

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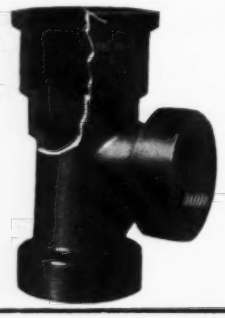

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The Farnsworth Duplex Boiler Feeder is the only machine of its kind on the market for returning condensation to boilers under pressure at a high temperature. It feeds **continuously**, one chamber feeding while the other chamber is receiving.

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ASK FOR CATALOG

ture will cost $25,000. The Masonic Temple at Goldendale is the third structure, and it will be two-story brick to cost $10,000.

All bids submitted for the proposed school building at Haines were rejected as too high, and new bids will be called. Tourtellotte & Hummel, McKay Building, have revised the plans.

H. O. Koeppen, of Portland, received the contract for the proposed $25,000 hotel at Condon. Contract for heating and plumbing will be let separately.

The School Board of Pendleton, will receive bids shortly for a heating system for the Hawthorne School.

Washington

Seattle and Vicinity.

The dominating features of new construction work in Seattle continues to be residence building, with the demand for homes still unfilled, and increasing daily. Housing bureaus and real estate men report that the need for additional listing of "for rent" houses is unprecedented, and will unquestionably continue all through the summer and become more accentuated in the early fall months. The exodus of usual summer vacationists has done little to relieve the situation, as nearly all of these people have retained their town apartments rather than run the risk of not getting them in the fall.

The number of large construction projects under way is not imposing, although there seems to be a gradual resumption of building for business purposes. Seattle, during the month of July, according to official reports, led the principal cities of the Pacific Coast in the volume of building permits.

Plumbing and heating contractors in this section have been comfortably busy during the past two months, although not rushed with work. A number of school projects have come up for bids, and quite a few out of town jobs have been slated for completion before fall. Local contractors have submitted bids on a number of jobs in nearby cities, and have been fairly successful in getting contracts.

City Architect D. R. Huntington has completed plans for the proposed new fire station at Thirty-third Avenue and East Union Street. The structure will be one-story, costing $12,000, and will be of brick, bungalow type, with modern plumbing and heating equipment.

Other Cities in the State.

Spokane Drug Company, of Spokane, plans the construction of a five-story steel and concrete wholesale plant to be 142x116 feet.

The Interstate Bridge Commission of Vancouver, plans the installation of comfort stations at each end of the Interstate bridge.

Arthur A. Morse of Spokane, plans the erection of an apartment house to cost $100,000. Details of the structure are not available at this time.

J. J. Lohrenz of Spokane, was awarded the general contract for the construction of Cottages No. 3 and No. 4 at the State School for Girls, Grand Mound, on his bid of $115,087. Contract for plumbing was let to Gehri & Co., of Tacoma at $25,200, and for heating to Bergh-Griggs Co., of Tacoma, for $11,705.

The Pantages Amusement Co., of Seattle, has obtained a site in Aberdeen, on which will be erected a new theatre and office building, at least four stories high, and costing between $150,000 and $200,000. Structure will be of brick and concrete, and will seat 2,000 people.

DISABLED SOLDIER FINDS WORK GREAT FUN.

A stoop shouldered man leaning on crutches came into the offices of the Federal Board for Vocational Education in Washington one morning, and looking around the room asked if this was the place where the soldiers who had been hurt in the war could find something to do. The agent of the board asked him to sit down, and told him the plan that the government had for helping the handicapped men of the army, navy and marine who had been disabled in the service so that they might keep on with an active life.

"I reckon it was in service all right," the stoop shouldered one said, laying his crutches by the chair. "At Belleau Wood. Lord, what a day." He let his hands drop listlessly between his knees, and turning his eyes to the adviser, he said, "Well, how are you goin' to help me? I have lost my left leg, and I have about two dollars in my pocket, and nowhere to get more. I never had a decent job in my life. I don't know how to do anything special, and I don't care what it is you give me to do, just so it's something."

The adviser talked to him for a bit, and tried to discover just what this man could do. He had held odd jobs here and there, but none lead to anything definite. He wasn't any more interested in auto mechanics than in street sweeping, or in gardening than clerking. He sat there listlessly looking at his hands, and left it to the adviser to decide. Every now and then he slowly turned a strange ring he had on his finger.

The adviser felt rather dashed. He couldn't get a lead from this man's silence, and to get his confidence he asked to see the ring. The man took it off and handed it to him. His face became suddenly animated. "I made that," he said. "Hammered it out of silver myself, and engraved those figures on the outside. Nothing but some playin' of mine," he added depreciatingly. The adviser looked at the ring carefully. It was well done, with a certain look about the engraving that gave him an idea.

"How would you like to learn engraving and get a good position in it?"

"Doin' this? Say, this ain't work. It's just play and nobody pays you for havin' a good time, do they?"

"Let's have a try at it," suggested the adviser, "and see what happens."

The Federal Board sent the man to learn engraving, and in a few months he was the best of all the workers in the jewelry store where he was employed.

That ring was the key that opened the door to success to him. He has waked up, and is enthusiastic about his work, only, he always says: "It's not work. This is fun." Well, your work always is when you have found the right vocation. That's what the Federal Board is doing for the disabled soldiers.

Clarence Cowen, of Atlantic City, has secured the contract to install plumbing and heating systems in a bungalow that is being erected there, for B. R. Fox.

The Reynolds Heating Co., Springfield, Mo., has secured a $13,000 contract to install the plumbing and heating equipment in the new C. D. Meyer apartments on East Walnut Street. Built-in bathtubs and a vapor system of heating will be installed.

A postoffice has been planned for the city of Pittsburgh, and that at San Antonio is about to undergo alteration. George E. Wright, of Chicago, has secured the contract for the later, while Algernon Blair, of Montgomery, Ala., will erect the Pittsburgh postoffice.

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Embodies a new and exclusive DOLE principle by which you can have every degree of opening required in vacuum or vapor steam heating.

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in closet construction is the new

Maddock Syphon Action Vitreous China Hopper Closet

Operates with very strong action.

Has unusually large opening throughout trap.

No. 391X. (Patented May 8, 1917.)

A special feature of this closet is the large surface of water and deep water seal. For about 12-inch roughing, with low tank.

Write for literature and prices.

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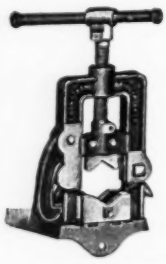
THE GENUINE ARMSTRONG

HINGED  PIPE VISE

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Atlantic City Convention Exhibit Awards.

Under the direction of President Frank B. Lasette, of the National Association of Master Plumbers, as chairman of the Exhibit Committee of the National Convention, held at Atlantic City in June, the awards of plumbing material donated by the exhibitors has been made. A committee of trade press men was invited by Mr. Lasette to conduct the awards, and the following is the attested report of that committee:

"On Friday, July 18th, 1919, in response to an invitation from Mr. Frank B. Lasette, president of the National Association of Master Plumbers, and chairman of the committee in charge of the exhibits at the Atlantic City Convention, the following representatives of the trade press met in Room 25, 2255 Broadway, New York, N. Y., and acted as a committee to make award of the plumbing material, etc., donated by manufacturers and jobbers for the convention in Atlantic City, N. J., the list of awards being attached:

"Metal Worker, Plumber & Steam Fitter, Frank K. Chew, Chairman.

"Merchant Plumber & Fitter, W. G. McCormick.

"The Plumbers Trade Journal, R. T. Bookhout.

"Domestic Engineering, C. G. Fundinger.

"Metal Worker, Plumber & Steam Fitter, Walter H. Reilly."

The following comprises the list of the donations, the donors and the awards:

No. 1. Viceroy Bath Tub, value $183.00. Kohler Co., Kohler, Wis.
Awarded J. F. McKenna, 20 West Forty-sixth Street (Kohler Co.), New York, N. Y.

No. 2. One Set of Beaver Die Stocks, value $30.00. Borden Co., Warren, Ohio.
Awarded F. W. Rudell, 225 S. Park Street, Decatur, Ill.

No. 3. One Haas Closet, value $50.00. Philip Haas Co., Dayton, Ohio.
Awarded Mrs. D. N. Landers, 244 Stewart Avenue, Atlanta, Ga.
Note: Frank Walsh, 908 Atlantic Avenue, Atlantic City, N. J., has fixtures in storage.

No. 4. Portable Shower, value $25.00. Keystone Mfg. & Supply Co., Philadelphia, Pa.
Awarded Fred Fleishauer, 78 Davey Street, Buffalo, N. Y.
Note: Frank Walsh, 908 Atlantic Avenue, Atlantic City, N. J., has fixtures in storage.

No. 5. White Closet Seat, value $14.00. Bridgeman Bros. Co., Philadelphia, Pa.
Awarded Flora Moore, 5034 Pine Street, West Philadelphia, Pa.

No. 6. Si-Wel-Clo Closet, value $75.00. Trenton Potteries Co., Trenton, N. J.
Awarded William Thompson, 59 Fifth Avenue, New York, N. Y.

No. 7. Elliott Gas Water Heater, value $15.00. Elliott Water Heater Co., Brooklyn, N. Y.
Awarded C. Madsen, 675 Forest Avenue, Woodfords, Me.

No. 8. Princeton Drinking Fountain, value $12.00. Glauber Brass Mfg. Co., Cleveland, Ohio.
Awarded P. W. Donoghue, 170 Purchase Street, Boston, Mass.

No. 9. Combined Foot and Sitz Bath, value $205.00. Standard Sanitary Mfg. Co., Pittsburgh, Pa.
Awarded D. H. Roberts, 2133 East 105th Street, Cleveland, Ohio.

No. 10. Vitreous China Madbury Lavatory, value $100.00. Thos. Maddock's Sons Co., Trenton, N. J.
Awarded W. C. McCarten, 8 North Fourth Street, Marshalltown, Iowa.

No. 11. Two-Part Laundry Tub, value $60.00. Fords Porcelain Works, Perth Amboy, N. J.
Awarded Joseph J. Crotty, 105 Cummings Street, Boston, Mass.

No. 12. Arco Temperature Regulator, value $56.00. American Radiator Co., Chicago.
Awarded W. S. Goodrich, 929 Fifty-sixth Street, Los Angeles, Cal.

No. 13. One-Piece Kitchen Sink, value $60.00. J. L. Mott Iron Works, New York, N. Y.
Awarded W. F. Bahn, 3608 Southport Avenue, Chicago.
No. 14. Water Heater, value $25.00. Humphrey Co., Kalamazoo, Mich.
Awarded Theodore G. Bunneeke, 2002 St. Paul Street, Baltimore, Md.
No. 15. Peerless Water Closet, value $75.00. Peerless Selling Co., Evansville, Ind.
Awarded H. H. Highlands, 710 Washington Street, Gary, Ind.
No. 16. Crane Lavatory, value $115.00. Crane Co., Chicago, Ill.
Awarded Mrs. William F. Eckart, 1614 Third Avenue, Seattle, Wash.
No. 17. 30-in. Atlantic Round Table, value $60.00. The Monument Pottery Co., Trenton, N. J.
Awarded to Mrs. William J. Flynn, 11 East 167th Street, New York, N. Y.
No. 18. One Pair Basin Faucets, value $10.00. Hoffmann & Billings Mfg. Co., Milwaukee, Wis.
Awarded Mrs. F. W. Johnson, 159 Notre Dame Avenue, Town of West Lambert, Province of Quebec, Canada.
No. 19. Curtainless Shower, value $7.50. Curtainless Shower Co., New York, N. Y.
Awarded to Mr. F. E. Zane, First Street, St. Mary's, W. Va.
No. 20. Combination Sink Faucet, value $15.00. H. Mueller Mfg. Co., Decatur, Ill.
Awarded to P. F. Haskell, M. D., Hospital, Artesia, Cal.
No. 21. One Pair Faucets, value $10.00. Thomas Savill's Sons, Philadelphia, Pa.
Awarded to Mrs. W. R. Smith, 4501 Paul Street, Frankfort, Pa.
No. 22. Combined Drain and Trap, value $20.00. Josam Mfg. Co., Cleveland, Ohio.
Awarded to John J. Reidy, 215 Geddes Street, Syracuse, N. Y.
No. 23. Fourteen-Inch Pipe Wrench, value $3.00. Greenfield Tap & Die Corporation, Greenfield, Mass.
Awarded to Frank Reynolds, 832 Third Avenue, New York, N. Y.

GREASE INTERCEPTION FROM HOUSE SEWAGE.

(Continued from Page 251.)

ordinary residence should contain about 4 gallons of water, in order to secure efficient grease interception.

The same may apply to earth-cooled traps with this exception that they can easily be made more ample in size without much expense.

It would appear that water-jacketed traps, or chilling traps as they are frequently called, may be about one-half the cubic capacity of air-cooled traps, for, if reasonably clean, they can cool the hot contents within ten minutes, or between ordinary doses.

That is the theory in a nutshell and explains why air-cooled and earth-cooled grease traps must be large, while water-cooled traps may, in ordinary domestic work, be much smaller.

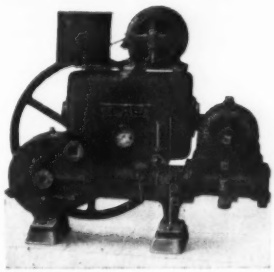
In figuring size of grease traps for large work, it is suggested that they be large enough to contain at least a one hour's discharge, if air-cooled, a 2 hours' discharge if earth-cooled, and a half hour's discharge if water-cooled.

Data appears to be quiet scarce on this subject. The above are only estimates. If any reader has more definite data regarding acceptable sizes the writer will be pleased to hear from him through this publication.

M. C. Wortman, of Denver, has purchased an interest in the plumbing firm of J. G. Green & Sons, of Lovell, Wyo. The new firm will be incorporated, according to Mr. Green, and plans include the taking on of larger work than in the past.

A heating plant, burning oil, estimated to cost $8,300, has been approved by the Board of Supervisors of Colusa, Calif., for installation in the courthouse, jail and hall of records, in this city.

DECATUR



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They joy to know they have a system that is entirely dependable at all times. Turn a faucet, gushing, sparkling fresh water comes dashing forth. Then drink—good and cold fresh water direct from that good old fashioned well.

Everyone, everywhere, is entitled to have running water—it is the greatest of the four prime utilities of the country, city or suburban home. Don't delay what you can do today. Ask your jobber about these efficient, simple and durable pumps. *DO IT TODAY!*

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THE FUEL SAVER!

It's LOTS BETTER than the regular "2 for 1" proposition.

Coal Is 2—Radiation 1!

It takes two tons of soft coal to heat each 100 ft. of radiation a season in the average Hot Water Job, therefore, if the radiation can be INCREASED without ADDING to the FOOTAGE, or in other words, the temperature of the water raised above 180 degrees and HELD there, something that is done with our AQUA TANK, it being increased at least from 40 to 60 degrees and HELD, makes a

Big Difference in the Coal Pile!

Therefore, the ratio falls from "2 to 1" to "1 1-3 to 1,"—A **BIG DIFFERENCE!**

Do you get us? or, in other words, 1 1-3 tons of soft coal takes care of each 100 ft. of radiation, in most States, per season.

Price $35.00 Net, F. O. B. cars, St. Joseph, Mo., with full freight allowed to any railway station in the United States.

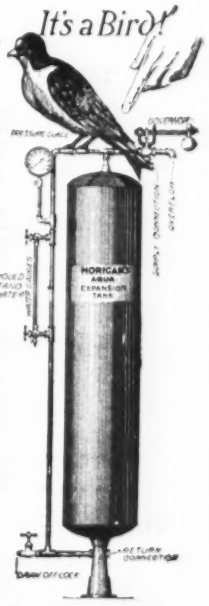

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Fig. 100—Steel Floor or Ceiling Plate

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THE MODERN PIPE FOR PLUMBERS
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Electric Light and Power Plants open the way to big business and increased profits for the plumber. Write for details.
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Let Sirocco Engineering service solve your ventilating, heating and cooling problems. Send for catalog.
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APEX

Our half-page announcement in the August 2nd issue of "Domestic Engineering" covers the special features of the Apex Non-Overflow Closet. Did you read it?
Apex Sanitary Specialty Co.
Trenton, N. J.
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Champion Auxiliary Heater
Fits any hot air furnace. Increases heating capacity. A business-getter and profit-maker. Try it.
Order from Your Jobber
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Nickel Plated Brass Specialties
Manufactured by
American Sanitary Mfg. Co.
Abingdon, Ill.

"FEMCO" Specialties
A standard line of Plumbers' Brass Supplies with an established reputation for
Quality Service Originality
WRITE FOR PRICES AND DETAILS
Frost Manufacturing Co. Kenosha, Wis.

THE VENTILATION OF RESTAURANT KITCHENS.

(Continued from Page 248.)

floor line, the floor line exhaust giving the best results under ordinary conditions, but, when patrons are smoking, an exhaust at the ceiling is also necessary.

General Summary:—Capacities.

In general a restaurant dining room should be provided with an equipment that insures a six-minute to eight-minute air change, depending upon special conditions. In the cafeteria type, the air change should never be on less than a six-minute basis. In the lunch counter type a change every eight minutes is sufficient. The ventilation of restaurant kitchens should be based on a three-minute air change under ordinary conditions. Where the amount of cooking done is above the average, or the ratio of air space to vacant floor space low, this must be exceeded. A one-minute air change is often necessary, and even this proves inadequate in certain cases, as noted in the "Winter Garden" restaurant kitchen.

Fan Types.

The use of disc fans should never be allowed except where they operate under absolute free air conditions. Direct connected disc fans in ducts, or connected to same, should be discouraged. Encouragement should be given to the use of curtain walls rather than canopies and excessive duct work.

Canopies.

All sheet metal used for range canopies and connections from the same to the fan should be of sufficient weight to withstand fire. Nothing lighter than 16-gauge iron should be allowed.

Owners and other persons interested in the operation of restaurants should be impressed with the necessity of giving the ventilating problem careful consideration, as it has a direct and important bearing on the success of the business.

Late News from Massachusetts.

A. J. Brennan, Jewett Block, Ipswich, has recently been awarded the following contracts: Heating in the Methodist Parsonage, and plumbing and heating in residences for H. M. Doughty, James E. Gallagher and George Schiller, and plumbing and heating in the F. L. Burke Factory.

Martin W. Dugan Co., 9 Market Square, Newburyport, will install the heating system in the Popoulis Block, plumbing in P. H. Pearson's residence, and plumbing and heating systems in the W. D. Hanna and N. D. Dodge residences and in the Towle Mfg. Co.'s plant.

Ralph W. Nelson, 60 Merrimac Street, Newburyport, has been awarded the contract to install modern plumbing in the B. F. Cole Shoe Factory, and plumbing and heating systems in bungalows for K. Knight, H. Harris and J. H. Larrabee.

The contract for plumbing in the new addition to the mill of the Russell Manufacturing Co., at Pittsfield, has been awarded to the J. H. Retallick Co.

The city of Worcester has voted to install shower baths in the fire headquarters building in that city.

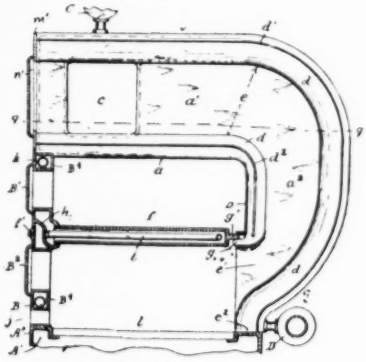
"Men You Meet" is the heading of an interesting column published by the "Lawrence Eagle," in which a likeness recently appeared of James H. Bride, senior member of the firm of Bride, Grimes & Co., plumbers and steam fitters, of 526 Essex Street, Lawrence. Mr. Bride, who is described as "one of Lawrence's leading citizens and business men," is a native of that city, and has followed the plumbing trade for 35 years. He has been in business for himself considerably more than half that time.

Fargo, N. D.—Ed Madison, of 419 Eighth Street, South, has secured the contract for the installation of plumbing and heating systems in the Evangelical Association's new church.

Patents

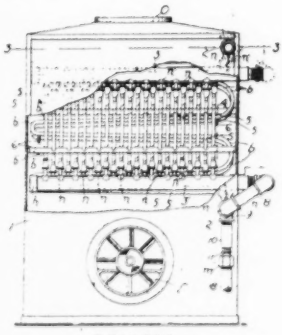
Heating Department.

1,310,198. Sectional Steam or Water Boiler with Water-grate. William M. Mackay, East Orange, N. J. A vertical firebox section for a steam or water boiler, comprising a water plate of L-shape having a horizontal arm with substantially horizontal edges, and a vertical arm with its lower edges gradually sloped toward one another to its bottom end, the arms having enlarged hollow channels along the margin with opposite sloping walls forming joint seats which



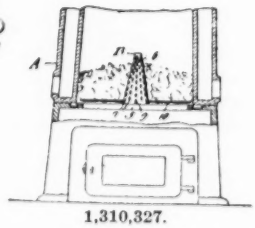
1,310,198.

extend along the outer margins of both arms and along the inner margin of the horizontal arm and part way down the inner margin of the vertical arm, the said enlarged hollow channels and joint seats forming, when the sections are assembled, a flue extending between all parts of the arms and forming a smoke outlet upon the inner side of the vertical arms at the lower end of the same.



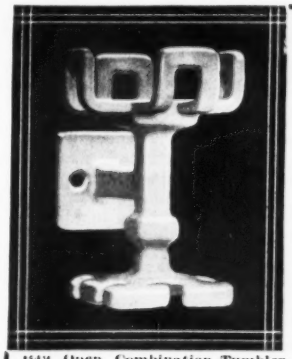
1,309,977.

1,310,085.



1,310,327.

1,309,977. Air Heating Apparatus. Henry Baetz, St. Louis, Mo. In an air heating apparatus, a suitable casing, steam pipes, disposed along the inner surfaces of two contiguous vertical walls thereof, drain pipes located below the steam pipes and disposed along the corresponding walls with the steam pipes, independent sets of coils leading from each steam pipe to its corresponding drain pipe or that disposed along the same wall, the sets between the one steam pipe and its corresponding drain pipe intersecting the sets of coils of the other steam pipe and its drain pipe at substantially the angle which the continuous walls of the casing



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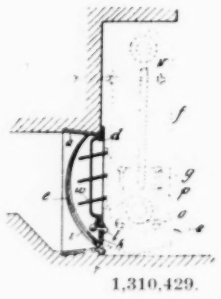
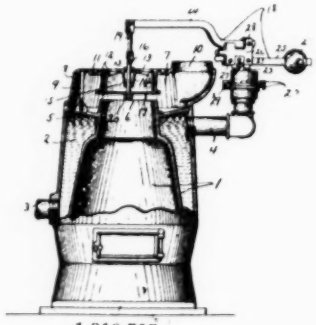
BALTIMORE, MARYLAND

make with each other, the individual pipes of the coils of the respective sets being disposed in distinct substantially horizontal planes and out of vertical alignment with one another.

1,310,085. Air Moistening Means for Furnaces. John M. Kelley and Ward E. Pratt, Rochester, N. Y. A float valve comprising a valve seat, a valve member having a screw threaded stem by which the valve is moved toward and from its seat, a cross piece on the stem, and a float having a stem pivoted to the cross piece on one side of the turning axis of the valve stem and having a pin and slot connection with the cross piece on the opposite side of said turning axis.

1,310,327. Ventilator. Lawrence J. Dutton, Pueblo, Colo. A ventilator for heating apparatus comprising a hollow frusto-conical member having an open bottom and vertically extending rows of spaced openings therein, the openings being provided with beveled walls which gradually decrease the size of the openings from the inner to the outer peripheral wall of said member and crossed rods passing through certain of said openings and extending exteriorly of said member.


1,310,429.


1,310,505.

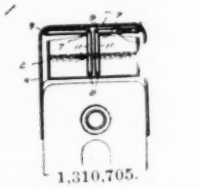
1,310,429. Ventilator. Walter William Nobbs, London, England. A ventilator comprising an air conduit having continuous side walls and an end closure, a curved air filter, curved grooves or guides carried by said side walls for holding said air filter in position substantially transverse to said conduit, the lower portion of said air filter as held by said grooves or guides being nearer said end closure than the central position thereof and a door provided for an opening in said end closure at the bottom thereof, such opening being adjacent the ends of said grooves or guides and the lower portion of said air filter whereby said air filter may be removed and replaced.

1,310,505. Draft Regulator for Heaters. Willis A. Schleit, Syracuse, N. Y. In a heater, a draft port, a lid having a substantially tubular depending portion alined with the draft port and adapted to form a check port, and a valve controlling both of said ports.

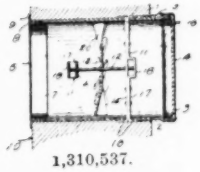
1,310,705. Humidifying Device. Victor Albert Larson, Chicago, Ill. A device of the character specified, comprising a trough adapted to contain water and to seat upon the top of a radiator, a casing for said trough comprising a body open at its bottom and having the sides of the body depending below the ends to permit said sides to extend down upon the sides of the radiator when the ends engage the top thereof, wick supports carried by the casing, and wicks on the supports depending into the trough.

1,310,537. Ventilator. John Merkel, Robinson, N. D. In a device of the class described, the combination with a drum, of a pair of sheet metal brackets positioned in said drum, each bracket comprising an inner and an outer strip, the inner strip being apertured at its center, the outer strip provided with a

pocket at its center positioned over the aperture of the inner strip, a shaft extending through the apertures of the inner strips of the brackets and having its ends bearing against portions of the pockets formed on the outer strips, and a fan mounted upon said shaft.



1,310,705.



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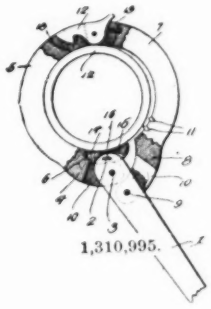
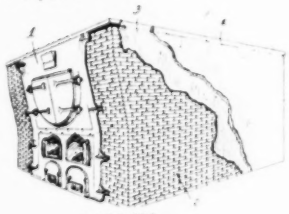


1,310,995.

1,310,995. Pipe Wrench. Walter R. Langford, Coalinga, Calif. A pipe wrench comprising an oscillatory handle having in its front end a transverse diagonal slot, a curved jaw having its rear end offset rearwardly from the arc of said jaw and pivoted to said handle in rear of said diagonal slot, a second curved jaw opposed to said first named jaw and having its rear end offset rearwardly from the arc of the jaw and pivoted to said handle in rear of the pivot of said first named jaw, means for detachably connecting the front ends of said jaws, a curved pipe engaging shoe in front of said offset end of the first named jaw and having a recess into which the slotted front end of the handle projects, and a pin extending across said recess and through said slot, said pin and slot coacting to force said shoe against the pipe when the handle is moved in a direction to contract said jaws and serving to withdraw said shoe when the handle is moved in the opposite direction, said first named jaw having a shoulder at the point of offset of its rear end to limit the movement of said shoe transversely of the handle when the latter is moved to release the jaws.



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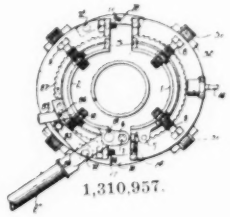

1,310,957.

1,310,591. Coating for Boiler Settings and the Like. Jacob M. Aarons, Cleveland, Ohio, assignor to The Excelo Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. A boiler setting structure comprising courses of brick and mortar, a primer coat applied thereto to fill the pores, said primer coat containing a nondrying substance, and an outer seal applied to the primer coat and sealing the entire setting against air leakage.

1,310,957. Pipe Cutter. Ira W. Nonneman, Warren, Ohio, assignor to The Borden Company, Warren, Ohio, a Corporation of Ohio. The combination of a separable annular cutter frame, cutters carried thereby and a scroll ring inclosed within the cutter frame and adapted to feed the cutters, said ring being separable on planes coincident with planes of separation of the frame.

1,310,507. Steam Trap. William Scott, Glasgow, Scotland. A steam trap, operated thermostatically, comprising an outer

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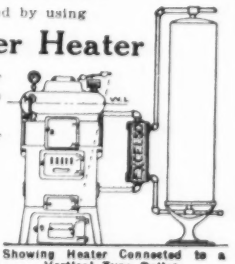
Simplest and most efficient water heater made.

Three sizes — tank capacities, 40, 70 and 100 gals. for use below water line. Heats storage tanks up to 800 gals. with live steam.



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Brass working parts submerged—works automatically by gravity.

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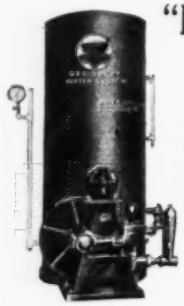

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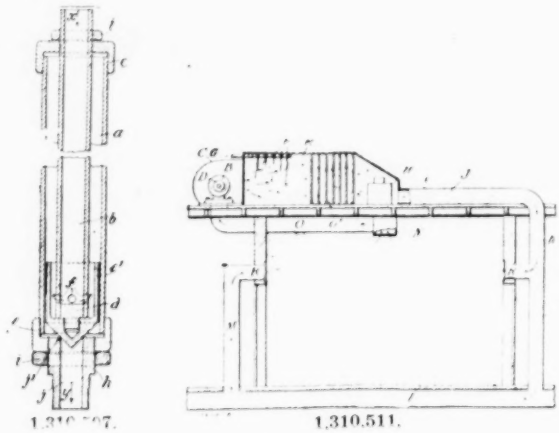
member, an inner member capable of movements relatively to the outer member, a valve on the end of the inner member and movable therewith and a seat for said valve on the outer member, the valve having a hollow extension located between the inner and outer members and means whereby steam can pass through the inner member into the hollow extension and thereafter into the outer member.

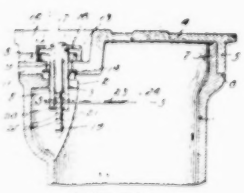


1,310,507. 1,310,511.

1,310,511. Process for Ventilating and Cooling. Leland L. Summers, Chicago, Ill. In a process of ventilation maintaining a zone of quiescent air in the lower portion of the compartment affected, withdrawing air from the upper portion of said compartment, cooling said air, returning the cooled air to the upper portion of the compartment and controlling the admixture with the other air of the compartment by means of the difference in specific gravities.

Plumbing Department.

1,310,521. Stop Valve Box. Prentiss R. Crall, Columbus, Ohio. In a stop valve box for fluid mains, the combination with the upper end of said box and a separable top plate therefor, of means for effecting a connection therebetween, comprising a threaded member protruding upwardly from the top of said box and capable of extending through and above an opening therefor formed in said top plate, adjustable means co-operative with said member to govern the distance between the upper end of said member and the correlated upper surface of said top plate, and a nut threaded upon the upper end of said member and operating to bear upon said top plate to hold the latter in clamped relation with said box.



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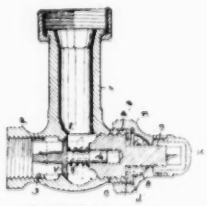
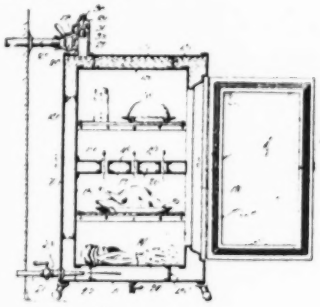


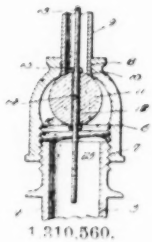
1,311,115.

1,311,115. Combined Check and Compression Valve. Arthur I. Fischer, Cleveland, Ohio, assignor to Glauber Brass Manufacturing Company, Cleveland, Ohio. A device as described comprising a pipe joint, a check valve seated therein having a stem on its rear, a plug adjustable in said joint having a central bore in which said stem is slidably mounted and a spring interposed between said plug and valve, the said plug having a key stem and a nut about the same, packing confined within said nut about said stem spaced apart from the body of said plug, a disk sleeved over said stem and engaged by said nut on the neck of said joint and adapted to confine

the packing regardless of the position of the plug, and a cap over the extremity of said key stem.

1,310,665. Water Cooled Refrigerator. Peter Kleineider, Cudahy, Wis. A refrigerator of the class described comprising an outer casing, an inner casing disposed in the outer casing and forming a refrigerating chamber, and a cooling fluid chamber in the refrigerating chamber, including a top and bottom secured to the inner and rear walls of the casing, openings in the side wall of the inner casing between said top and bottom of the fluid chamber, openings in said top and bottom between the first named openings, and partitions at the sides of the second named openings extending to the side walls of the inner casing at the ends of the openings of said side walls.





1,310,560.

1,310,560. Float Valve. De Loyd K. Cook, Maquoketa, Iowa. As an article of manufacture, a float valve structure comprising a casing internally threaded at its lower end and having a valve seat within its upper end, a stem extending entirely through and above the casing and threaded at both ends, a pair of nuts on the upper thread, a float adjustably held between them, a pair of nuts on the lower thread, a ball valve adjustably held between them and loose within the casing, and a baffle comprising a disk split radially and distorted to make its edge spiral and adapted to fit the threads within the casing below said valve, the body of the disk being perforated for the passage of water and having a central opening for guiding said stem.

THE COST OF THE WAR.

According to a review made by Representative Cordell Hull, of the House Ways and Means Committee, the total cost of the war to the United States from April 6, 1917, to June 30, 1919, will be $30,205,000,000. Compared with the year cost to the Allies from August 1, 1914, to date, this is three-fourths the size of England's war expenditure, $40,640,000,000; one-fourth larger than the debt of France, approximately $23,400,000,000; twice as large, almost, as the debt of Italy, $16,000,000,000; and fifteen times the war debt of Canada, $2,000,000,000. The cost to Germany has been estimated at $45,500,000,000. Compared to the cost of the whole Civil War period, fixed in 1879 at $6,190,000,000, the war just closed cost five times more. Exclusive of losses in property and materials, which probably will never be known, the cost of the war in money or its equivalent, according to Mr. Hull, amounts to $200,000,000,000, or within $50,000,000,000 of the estimated wealth of the United States. Interest charges on the total indebtedness of the Allies will amount to $10,000,000,000 annually. Mr. Hull says this nation can without difficulty meet and pay off its obligations far in advance of other nations, and that "we should soon be able to get our normal expenditures down to a permanent peace level of not over $3,000,000,000."

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PIERCE DOWN DRAFT HEATING BOILERS
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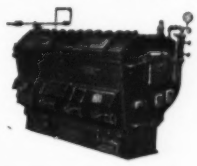

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FOR lasting quality and true capacity use "KOVEN" Pure Iron, Double Row Riveted, Galvanized Range Boilers, or NACO Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

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WANTED—GOOD PLUMBER, OPEN shop, eight hour day, $6.40. Address 2697, care "Domestic Engineering," Chicago. 8-9

WANTED—FOR NEWARK PLUMBING supply house, experienced men, for the plumbing supply business. Either estimator, price clerk, counter clerk or stock clerk. Address William S. Rowe, Newark, N. J. 8-9

WANTED—PLUMBING AND HEATING salesman. Thoroughly experienced and a worker. Excellent territory offered. Leighton Supply Co., Fort Dodge, Iowa. 8-2; 9

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WANTED—SALES ENGINEERS TO sell the "Wiley" line of improved Vapor Heating Appliances. Good territories open. Simplex Heating Specialty Co., Inc., Lynchburg, Va. 5-3tf

WANTED—SALESMEN TO HANDLE our line of plumbers', steamfitters' and Anglyn brand brass goods, on commission basis. Territory in every state. Write Angster & Lynch, Newark, N. J. 2-22tf

WANTED—SALESMAN WITH THE ability to sell plumbing and heating goods to Iowa trade. Acquaintance with trade will be to your advantage, although house is well known. An energetic up-to-the-minute salesman is wanted. Your selling ability will govern wage increases. Co-operation always given. Address 2691, care "Domestic Engineering," Chicago. 7-26; 8-2-9

WANTED—COMPETENT AND WELL experienced man to take charge of plumbing and mill supply house. House just opening up. Location western part of Virginia. Prefer man who knows the trade in Virginia, West Virginia, Tennessee and North Carolina. Good pay and opportunity for man who can deliver the goods. Apply 2693, care "Domestic Engineering," Chicago. 8-2

Situations Wanted.

POSITION WANTED — FIRST CLASS plumber and steamfitter wants to locate permanently in a good small town. Address Box 181, Waukon, Iowa. 8-2; 9

POSITION WANTED—GOOD HEATING and plumbing man possessing thorough knowledge of materials and installations, desires connection, preferably in Pacific Coast country. Formerly conducted a very successful business amounting to more than one hundred thousand dollars a year. College education in mechanical, factory and business administrative lines. Can take charge of office or production end and show results. Manufacturing, jobbing, sales or contracting connection solicited. Full details exchanged in first letter. Address 2696, care "Domestic Engineering," Chicago. 8-9

MANAGER OR SALES MANAGER, seeks engagement. Would like to get into touch with those desiring new blood in their business. Capable of organizing and systematizing. Result producing. Can "make good" wherever put. A correspondent forceful, tactful, constructive along broad lines, thoroughly trustworthy and a hard, hustling worker. Have been successful in everything previously undertaken. Aged 40 years. But recently resigned from responsible position, desire connection permanently with concern desiring change or who wish to be relieved of exacting executive cares. Either medium size factory plant or important branch office. References from eminent sources. Address 2699, care "Domestic Engineering," Chicago. 8-9;16

For Sale.

FOR SALE—USED PLUMBING AND heating material, radiators and boilers. D. B. Plumbing & Heating Sales Co., Fort Wayne, Ind. 8-9tf

FOR SALE—FIVE THOUSAND DOLlars will buy a plumbing business in one of the best mountain city health resorts in the south. This business is operated by one man and is paying over $5,000 annually. A purchaser could step in with as much business as he can handle and no better customers on earth. Reason for selling—retiring. Address 2664, care "Dometic Engineering," Chicago. 7-26; 8-2-9

Miscellaneous.

WANTED—SECOND HAND SAUNDERS I X L Motor Driven Threading Machine. Send full particulars. Henry Meyer, Bucyrus, Ohio. 8-9;16

WANTED TO BUY—PLUMBING AND heating business in good live town, or half interest with reliable man. Address 2698, care "Domestic Engineering," Chicago. 8-9

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Government Proposals

TREASURY DEPARTMENT, SUPERvising architect's office, Washington, D. C., July 23, 1919. Sealed proposals will be opened in this office at 3 p. m. August 21, 1919, for a toilet room in the United States Custom House, at Detroit, Mich. in accordance with the specification and drawing, copies of which may be had at this office or at the office of the Custodian, Detroit, Mich. in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 8-2; 9

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., August 4, 1919. Sealed proposals will be opened in this office at 3 p. m. Sept. 2, 1919, for additions to plumbing in the United States Post Office and Court House, Parkersburg, W. Va., in accordance with the specification and drawing, copies of which may be had at this office or at the office of the Custodian, Parkersburg, W. Va., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 8-9;16

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., July 29, 1919. Sealed Proposals will be opened in this office at 3 p. m., August 19, 1919 for water supply connections at the United States Marine Hospital at New York, N. Y. (Stapleton), in accordance with specifications and drawings, copies of which may be had at this office or at the office of the Supervising Chief Engineer, Frank A. Lang, 731 Custom House, New York, N. Y., in the discretion of the Supervising Architect, Jas. A. Wetmore, Acting Supervising Architect. 8-9;16

GOVERNMENT SALE OF Steam Boilers and Engines,—50-80 H. P. Boilers; 8-30 H. P. Engines; 2-96 H. P. Engines. Sealed bids will be opened 10 A. M. August 26, 1919 at Munitions Bldg., Surplus property Division, Washington, D. C. Particulars, special bid forms can be obtained at above office or Zone Supply Offices, attention Surplus Property Officer, following Cities: Boston, New York, Baltimore, Philadelphia, Atlanta, Jeffersonville, Ind., Chicago, St. Louis New Orleans, San Antonio, Omaha, El Paso, San Francisco. Refer to S. P. D. Nos. 2793, 2777, 2743 & 2225 M. E. 8-9; 16

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